THE

HISTORY

OF

CANINE MADNESS

AND

HYDROPHOBIA:

WITH THE METHODS OF TREATMENT,

ANCIENT AND MODERN.

By GEORGE LIPSCOMB, M. D.

&c. &c. &c.

Miserrimum genus morbi, in quo simul æger et siti et aquæ metu cruciatur. CELSUS.

Ille solum cui natura morbi perspicitur, bene intelligit quæ poscit remedia. HUXHAM in Prolog. ad Observat. de Aëre.

LONDON:

Printed for the Author;

AND SOLD BY BUDD, PALL-MALL; G. ROBINSON, PATER-NOSTER ROW; RODWELL, OXFORD-STREET; MURRAY, FLEET-STREET, &c. &c.

1809.

NICHOLS *and* SON, *Printers,*
Red Lion Passage, Fleet Street.

TO THE

MOST HIGH, MOST MIGHTY,

AND MOST ILLUSTRIOUS PRINCE

FREDERICK,

DUKE OF YORK AND ALBANY,

EARL OF ULSTER,

KNIGHT OF THE MOST NOBLE ORDER OF THE GARTER,

AND

OF THE MOST HONOURABLE ORDER OF THE BATH,

FIELD MARSHAL OF HIS MAJESTY'S FORCES,

SECOND SON OF THE KING;

THE FOLLOWING PAGES

ARE (WITH HIS ROYAL HIGHNESS'S GRACIOUS PERMISSION)

INSCRIBED AND DEDICATED,

BY HIS ROYAL HIGHNESS'S

MUCH OBLIGED, DUTIFUL,

AND FAITHFUL SERVANT,

G. LIPSCOMB.

PREFACE.

It has been well observed, that if every medical practitioner, who enjoys an extensive field of observation, had endeavoured to elucidate the nature of some one disease, the treatment of most disorders would have been very perfect by this time.

Having had numerous opportunities of observing the effects of

different poisons introduced into the human system, my attention was naturally directed to the prevalence of Canine Madness, in its recently destructive ravages; with peculiar earnestness and anxiety.

He who explores a track seldom trodden, and ventures boldly, with his eyes open, into places which others are afraid to approach, or which they have only timidly viewed at a distance, will often find something worthy of attention, and sufficiently valuable to repay him for his trouble.

I have not been an inactive spectator of the distresses felt by my fellow-creatures in this dread-

ful disease: I hope I have not been an unuseful one.

A very learned Physician, in the only valuable work which has lately appeared on the same subject, observed, that a general history of Canine Madness did not come within his view: and adds, "Such an History is much wanted; as improvement in the treatment of this greatest of all human miseries can never take place, until the medical superstition and ignorance, with which it is involved, shall be properly exposed; some hope established, and all reliance on nostrums and pretended cures totally destroyed."

The deference which every man of literature and science willingly pays to such an authority on such a subject, and the concurrent opinion of every person of reflection and judgment, who has witnessed the mischievous consequences of ignorance and prejudice on all occasions connected with the practice of Medicine, impressed my mind with an idea of the benefits to be expected from the execution of the task above suggested.

I was prompted to the undertaking by many opportunities of seeing and attending to the treatment of Hydrophobous persons: and, encouraged by the favourable

and flattering reception which my opinions met with from a great variety of persons, to whom they were fairly and explicitly communicated; and my resolution to lay before the public the sum of my researches and the result of my experience, was determined by the success which has attended my practice, and the illustrious patronage which has been graciously extended to my labours for promoting public benefit, and the interests of Humanity.

Of the execution of this task, the public must form their own judgment. I have endeavoured to bring in review before them the

most important and leading circumstances relative to the Disease, whose history constitutes the following pages: to collect and condense the principal doctrines and arguments which, at different and distant periods of time, have been maintained and acted upon, by the most eminent physicians; and to explain some of those principles of pathology which have been hitherto either overlooked or neglected by those who have written on this subject.

It has been every where my design, that Theory should hold a subordinate rank to Practice: and that Facts and Experience should

subdue and destroy Superstition and Hypothesis.

After all the pains I have taken, I am duly sensible of numerous inaccuracies, and even defects, in this performance; and that it does not become me to speak of it, without great diffidence and humility; but amidst the precarious and fatiguing avocations of professional duty, it would have been difficult, in the time allotted me, to have made it correct and elegant. I will not accuse myself of so much sluggishness of disposition or want of genius, as to be disqualified for giving it a more perfect finish, or a higher polish: but I was desirous

of presenting to the world, without delay, at least some portion of information which they have long wanted: and men of liberality and learning will, I am persuaded, allow this motive its due weight, in apologizing for the defects of the work.

I beg leave to acknowledge, in the most grateful and respectful manner, the advantages derived from the communications of many intelligent friends, belonging to the faculty of Medicine; the access which has been kindly allowed me, to scarce and valuable books in some of the best collections: and the obligations which I feel to the

polite and liberal condescension of the Right Honourable Sir JOSEPH BANKS, President of the Royal Society, and other learned Naturalists, who, with the greatest alacrity, and the most obliging candour, have imparted to me their enlightened opinions on various topics immediately connected with this History.

London,
11*th April* 1809.

CONTENTS.

CHAP. I.

On the Nature and Symptoms of Canine Madness 1

CHAP. II.

On the Causes of Rabies among Dogs - 29

CHAP. III.

On the Methods of preventing Rabies in Dogs 43

CHAP. IV

On the Communication of Rabies to the Human Race; and the Occurrence of Hydrophobia - 62

CHAP. V.

The Treatment recommended by preceding Authors - - - - - 107

CHAP. VI.

Remarks on the Treatment described by ancient and modern Authors - - - 142

CHAP. VII.

Remarks on the Principles on which the Prevention and Cure of Hydrophobia may be undertaken: with the Author's practice - - 166

HISTORY

OF

CANINE MADNESS

AND

HYDROPHOBIA,

&c. &c.

CHAP. I.

ON THE NATURE AND SYMPTOMS OF CANINE MADNESS.

THE numerous instances in which that alarming and fatal disease, consequent upon the bite of a Mad Dog, has recently occurred; and the frequent prevalence of Canine Madness, within the two last years, have induced me to offer to the Public the following remarks: more particularly, because the specific nature of this distemper has been but little understood,—the descriptions given of it, have been, in general, insufficient for any practical purpose; and because I have had ample opportunities of

seeing and investigating many of the Cases of this description which have lately occurred.

The symptoms produced by the bite of a Mad Dog, or any other animal diseased from Canine Madness, are so dreadful, and so generally fatal, that it is presumed any attempt to elucidate their origin and progress, or to explain the principles on which their prevention or removal may be attempted, will meet with a candid reception, not only from the Faculty, but from the community at large.

The accounts which have been published, respecting this disease, are mostly incorrect, often contradictory, and sometimes false. They appear to have been written at periods remote from the occurrence of the incidents described; and seem calculated rather to support some preconceived theory, than to form the basis for sound reasoning and judicious practice, by a faithful recital of facts.

Few of the writers on this subject, have ever witnessed the scenes which they have narrated; and the absurdity of the treatment and remedies, sometimes recommended, amounts almost to a positive proof, that

there are among them others, who have *not even seen* the disease.

From such authors little real information can be derived, besides that which springs from the relation of errors: but by reflecting upon the practice pursued by others, we may, at least, learn to avoid that which is injurious, if we can not select any thing useful.

Rabies, the disease which forms the subject of this History, though, perhaps, most common among the Canine species, is found also to affect wolves, foxes, cats, and other quadrupeds, not only by communication from biting, but constitutionally, and in a spontaneous manner.

In the northern part of *France*, where wolves formerly abounded, and often committed great devastations among the peasantry, madness among these animals is said to have been very prevalent*. But the lower orders of persons inhabiting those provinces, were grossly ignorant; and wolves are naturally ferocious: so that it must have been extremely difficult to ascertain in any

* Memoirs of the Royal Society of Medicine at Paris, Part 2, 1783.

given case, whether the animal from which the bite was received, were mad or not.

One great error which pervades most of the books on the subject of *Rabies*, is the term by which the disease is designated. *Rabies*, being familiarly translated by the word *madness*, seems to have been mistaken as if synonimous with *mania*. This mistake, whether arising from ignorance or inadvertence, has led to vast confusion.

Those who adopted the notion that the disease is of the nature of putrid fever, inveighed against the term *madness*, because the proper definition of that affection, is *delirium without fever**: and they not only deny that dogs go mad, at all, but contend against many of the best authenticated accounts of the disorder, which have been from time to time delivered to the world; because they do not describe a train of

* Galen. de Epidemic. tom. v. lib. i, p. 368. Cœl. Aurelian. de Morb. Chronic. c. v. Aretæi de Causis et Sign. Morb. lib. i, p. 41. Paul. Æginetæ, lib. iii, c. 14, de Melancholiâ. Alex. Trallian. lib. i, c. 13. Gorræi Definitionum lib. p. 383. Fœsii in Œconomiâ Hippocrat. p. 241. Willis on Diseases of the Brain, &c. ch. xii, p. 201.

symptoms, which, existing only in their own imagination, never in reality belonged to the disease.

Dogs having become diseased, and in that condition biting every one who approaches them, even their masters, have been denied to be mad, because the persons bitten did not become hydrophobous: and consequently a dangerous, and sometimes fatal confidence, has been established, in the use of the most absurd or inefficacious remedies which in such cases have been often resorted to.

On this account, and for other reasons, it is probable, that if the term *Rabies* had not been wrested from its true and original signification, much more correct ideas than those which have hitherto prevailed, would long ago have been established, respecting the disease, and the propagation of it.

Rabies undoubtedly signifies *violent anger or rage:* and does not convey any other idea of the absence of reason, or the perversion of judgment in mankind, or the diminution of sagacity, or loss of instinct in brute animals, than that which necessarily belongs to, and accompanies the prevailing

influence of violent and ungovernable passion.

In this sense the same word is frequently used by many authors, ancient and modern, always to express *anger*, not *disease* *.

Moreover, when it is recollected that this is an affection peculiar to Dogs, and the race of quadrupeds which most nearly resemble them, it should not be forgotten that irascibility belongs to the Dog as a characteristic principle †. The Dog is more prone to anger than any other domesticated animal. The slightest noise not only interrupts his repose, but produces emotions of rage, which do not appear to belong necessarily to that vigilance for which the canine race has been so much distinguished and celebrated ‡.

* Virgil. Æneid. lib. vii, v. 493, et alteris locis. Juvenalis, Sat. vi, lib. 2, l. 648; ibid. Sat. xv, lib. v, l. 126. Horatii Od. iii, v. 14. De Art. Poet. v, 79. Tacit. Hist. lib. i, 63, tom. 3, p. 52. Justin. Hist. Philippicæ, lib. xxix, c. 3. Lucretii lib. iv, l. 1110. Ammiani Marcellini Rerum Gest. lib. xvi. Paterculi Hist. Roman. lib. ii, c. 64. Lucii Apuleii Op. tom. i, p. 451, Apologia; ibid. tom. ii, p. 809, Floridus, alterisque locis. Brucker, Hist. Critic. Philosoph. tom. iv, p. 399.

† Ruyschii Hist. Nat. de Quadrup. tom. i, p. 123.

‡ Athenæi Deipnosoph. lib. xiii, p. 611. Vesalii de Humani corp. fabricâ, p. 63. Ed. Basileæ.

But perhaps it would be more correct to consider what is termed watchfulness in the Dog, to be partly resulting from the impetuosity of his temper, and his general irascibility: for dogs sleep as much or more than other quadrupeds, and are only more readily disturbed, or rendered more unquiet by the slightest noise or irritation.

By admitting this fact, we shall perhaps gain as much in philosophical truth as is lost in poetical fancy, by denying that superiority of vigilance which has raised the Dog to the highest estimation of mankind, placed him among the constellations of heaven, and made him in idolatrous times a symbol of one of the attributes of Deity *.

Fidelity of attachment, patience, courage, and sagacity, are perfectly distinct qualities †.

* Polybii Hist. tom. ii, c. 16. Ed. Lipsiæ. St. Clementis Alexand. Strom. lib. v, tom. vi, p. 671.

† Dion. Cass. Cocceiani Hist. Roman. lib. xviii, p. 621. Homer. Odyss. xvii. Iliad. lib. i. Diodor. Sic. Bibliothec. Hist. lib. xvii, p. 561. Ed. Hanoviæ. Herodot. p. 565, de Vitâ Homeri. Ed. Lugd. 1604. Virgil. Georgic. lib. iii, 405, et seq. Ovid. Metamorph. lib. vii. Strabo. Geograph. lib. xv, p. 700. Ed. Parisini. Plinii Hist. Nat. lib. viii, c. 40. Plutarch. de Solertiâ Animal. tom. vii, p. 856. Se-

But whatsoever doubt may arise as to the propriety of considering madness in the light of permanent anger: whatsoever objections may be made to the obverse of this proposition,—that excessive anger or rage, is temporary madness; it can not be denied, that the empire of reason is invaded by them, equally, in proportion to their respective periods of duration *.

Under their influence, the Dog loses that instinctive attachment to his home †, which had impelled him, amidst difficulties and dangers, to retrace his footsteps through pathless deserts, and all the mazy windings of the forest, in search of his accustomed shed ‡: forgets his affection for the hand which fed him, to whose correction he patiently submitted; and his habits of inoffensive tranquillity.—Human creatures violate the laws of decorum, forget the bonds of

necæ Thyesth. 1, 3, v. 49. Aul. Gell. Noct. Attic. lib. vii, c. 1. Hect. Boethii, lib. vi, p. 97.

* Themistii Orat. xxii, de Amicitiâ, p. 269. Paris. Ed.

† Hamilton's Remarks on Hydrophobia, vol. ii, p. 153.

‡ Æliani Var. lib. ii, de Rusticâ, cap. 9, de Canibus. Ægidii Menagii in Diogenis Laert. lib. vi, segm. 40, tom. ii, p. 241. Ed. Amstelædami.

friendship, defy every moral obligation, reject those rational, social, and religious duties, which they have been used to respect, to admire, and to venerate !

Thus there appears to be sufficient ground for employing in familiar language the same term as descriptive of this particular disease in the Dog, which is usually applied to a disorder, certainly different in the human species, but attended by circumstances, evidently bearing a near relationship to those which take place among Dogs when suffering under Rabies.

Rabies was formerly supposed to originate in the internal and organic disease of the dog ; and to be capable of being communicated to the canine race, not only by the bite, but by the breath : but not to be capable of communication to the human species, or to other animals, unless by the introduction or inoculation of certain particles of the salivary secretion.

I have elsewhere had occasion to remark, that those diseases which seem to belong more particularly to one species of animals than to another, are communicated to those of a different species, with greater or less

difficulty, in proportion to the similarity or dissimilarity of their organization *.

Animals which feed on food of very different kinds; as, for example, the carnivorous and graminivorous, are almost entire strangers to the diseases of each other. Sheep do not receive the infection of a disease, which may be so powerfully epidemic among swine, that few of the latter escape it, in a whole herd, or even an extensive district †.

Horses, fed on dry provender, do not exhibit the same symptoms in their diseases, which are well known to arise among sheep, from the humidity of their food. They have some diseases peculiar to themselves.

It is unnecessary to multiply examples: but it may be farther remarked, that there are animals totally insensible to the effect of the most venomous poisons, when applied to their bodies exactly in the same manner in which such poisons are found capable of speedily extinguishing life, in animals of a different kind.

In the disease under consideration, in conformity to this apparently general law of

* Dissertation on the Cow Pox.

† Fordyce, on Simple Fever, p. 113.

the animal œconomy, the bite of a mad dog, a mad fox, or a mad cat, is usually more speedily productive of Rabies amongst their respective species, than amongst others : and, in almost every instance, it is still longer before it appears in the human race.

Besides the difficulty of communicating the disease to animals constitutionally different from those which spread the infection, there are undoubtedly numerous cases in which Dogs themselves resist the power of infection, and are unsusceptible of the disease. And it must not be forgotten, that such an unsusceptibility is not always permanent; but, being present at one time, may occasion the animal, possessing it, to escape the evil consequences of a rabid bite, and afterwards, the susceptibility being restored, he may suffer the most direful influence of infection.

This circumstance, and this only, will satisfactorily explain how it happens, that a whole pack of dogs never go mad at the same time : and that, when many have been bitten by the same dog,—perhaps only one or two of them are seized with the disorder. It is, therefore, of great practical importance.

The natural history of the Dog has been so imperfectly delivered, that but little is generally known of the diseases incident to that animal.

The first Author who mentioned the Rabies was ARISTOTLE.

He said, that Dogs were subject to three diseases, Rabies, Quinsy, and Gout in the feet [ποδαγρα.]

With regard to the Quinsy and Gout, it does not come within the design of this publication to enlarge upon them, but as the assertion appears to be somewhat extraordinary, it may be permitted me to remark, that the disease, termed gout, although, perhaps, not exactly understood, was probably that local affection to which Dogs, in common with other animals, are liable, in consequence of severe cold and damp, and the want of clean and dry litter *: and which among cattle, particularly sheep, is denominated the foot-rot. The learned Stagyrite further says, that Dogs die of madness, and all animals bitten by a mad Dog, (excepting man,) go mad, and die †.

* Virgil. Georgic. lib. iii, v. 299.

† Aristot. Hist. Animal. lib. viii, c. 22.

ÆTIUS has delivered by far the most accurate detail of the symptoms of the disease in dogs, either among ancient or modern writers. It is unfortunate that he has been often quoted, by persons who, having some pre-conceived bias, were more disposed to deny facts, than to illustrate them. He has also been copied by many others, who have not had the candour to acknowledge their obligations to him.

He says, dogs are naturally hot and dry. That the increase of temperature, which the air acquires in the summer months, occasions dogs to go mad, and that this madness is called *Rabies*.

He likewise attributes the disease to sudden mutations and variations of the atmosphere, such as take place in those regions where the winter's cold and summer's heat are excessive.

He adds, that dogs also go mad, from thirst, when deprived of water: and that then the malignity of the venom is the greater.

He delivers the following, as signs of madness in dogs. At first they become mute, then delirious, and do not know

people to whom they have been most accustomed; not even their masters. They refuse food, are thirsty, but do not drink: and usually pant; and breathe with difficulty. They keep their mouth open; the tongue hanging out; and discharge abundance of frothy saliva. Their ears and tail hang down. They move slowly; are dull and sleepy. When they run, it is faster than ordinary, and in an irregular and uncommon manner *.

VIRGIL mentions the disease as arising from atmospherical infection †.

RUYSCH, partly copying from ÆTIUS, describes the disease as accompanied by an abhorrence of meat and drink. He says, the dogs suffering it, wander hither and thither, bark hoarsely, and discharge abundance of froth from the mouth and nostrils, look sullen, carry the tail hanging down, and bite every one who approaches them ‡.

LOMMIUS says, that a dog when mad, refuses meat and drink, that his eyes are

* Ætii Tetr. ii. Serm. 2, c. 24.

† Georgic. lib. iii. v. 496.

‡ Ruyschii Hist. Natural. de Quadruped. tom. i, p. 125.

inflamed and look fierce, he hangs down his ears, lolls out his tongue, foams much at the mouth, barks at his own shadow often with a dismal voice, and runs about as if distressed, wandering with irregular steps, as if much fatigued, reverses his tail downward, and bites all objects in his way without discrimination *.

Boerhaave also described the appearances of madness in the Dog very circumstantially.

He states, that the signs of approaching Rabies are these; dogs become dull and stupid, endeavour to get out of sight, cease to bark, but make a murmuring noise; and refuse both meat and drink. That their ears and head hang down, and they walk nodding, as if overpowered by sleep. In the next stage, that they pant, hang out their tongue, keep their mouth open; and discharge large quantities of froth; and run about with an uneven and irregular step. Their eyes look dispirited and dull, full of tears: their tongue lead-coloured:—that they soon appear emaciated and fallen away,

* Lommii Medicinal. Observ. lib. i, p. 64.

at length become quite mad; and seldom live longer than thirty hours *.

These descriptions are all evidently incomplete, because neither of them extends to the natural termination of the disease.

But it must be confessed, that the disease is seldom suffered to proceed to a natural termination. The cure of it is almost hopeless, the danger from the infection imminent, and the value of the animal's life comparatively small; so that there are few instances, in which the terror excited by the disease does not anticipate, by a violent death, the destruction which would have speedily followed the symptoms before described.

In Rabies, as well as in other diseases, there are many varieties which can only be understood by long and attentive observation.

The refusal of food and of drink, does not uniformly take place †. Some dogs remain mute and stupid till they die paralytic,

* Boerhavii Aphorism. Sect. MCXXXV.

† Hamilton's Remarks on Hydrophobia, vol. 2, p. 226.

without evincing any of the later symptoms of raging madness.

However, the great characteristics of the disease are, the acquirement of a new and unusual disposition to bite every thing which they approach; an inclination to wander from home; a forgetfulness and dereliction of those instinctive attachments, which neither severity of chastisement, nor even hunger and want, nor any thing but the *Rabies*, is capable of producing.

To these may be added an increase of the salivary secretion: but, let it be remembered, that this *does not always take place in such a degree as to be observed, in the early stages of the disease; nor until after the period at which the bite is* very dangerous, and often productive of *Rabies*.

Among the detached histories which have been published, it has not been my fortune to meet with any one more distinctly pointing out the regular progress of the disease than the following account, of which the authenticity may be depended upon.

In the month of August, 1762, two dogs belonging to a relation of mine residing in Buckinghamshire, were bitten by a mad

hound (belonging to the Earl *Verney)* which ran through the village. One of the dogs, a small spaniel, was bitten in the face: the other, a large mastiff, on the side.

They were both immediately secured, and a farrier was sent for, who made a rowel in the neck of each; and administered internally some composition which was in great repute as an antidote. They were tied up separately; fed at the same time, and with the same kind of food,—chiefly milk. At the end of ten weeks after the bite, the spaniel began to refrain from food, became sleepy and stupid; in which state he continued for more than three weeks, when he broke his chain and ran away. He was pursued the next day, and overtaken, at about the distance of two miles, where he was immediately shot. He was then in a violent state of madness, and had bitten several sheep.

The large dog continued apparently well, till the beginning of the sixteenth week, when he began to refrain from both water and food; was very restless, howled dismally, gnawed his chain, and bit at every person who came near him. His eyes were

excessively red, and he foamed much at the mouth. In this condition he remained for about a week, when the continual noise he made, so much disturbed the neighbourhood, that it was thought proper to destroy him.

In this narrative, however, there are many circumstances wanting, which are said to have been observed in some instances of the same malady.

JAMES, commenting upon the description given by *Boerhaave*, as before cited, complains that he has omitted *the most certain characteristic of madness* in dogs; namely, that all other dogs on smelling a dog going mad, avoid him, and run away with horror *.

He introduces this assertion on the authority of his own experience, having, he says, frequently seen a very small dog walking or trotting down a street, and very large and fierce dogs running out of houses and the inn-yards with an apparent intention of worrying the miserable animal; but that he observed at the instant they approached him, that they turned back and ran away

* James's Treatise, p. 30.

with the utmost precipitancy and with all imaginable signs of terror and consternation *.

In support of this opinion, JAMES refers to *Lommius* † and *Desault;* who supposed that dogs not mad distinguished those affected by the disease, both by their appearance and their manner of barking; and being stricken with horror, spontaneously fled from them: but it is impossible to forbear smiling at the anecdote with which this notion is attempted to be corroborated, viz.—that a man to whom DR JAMES's spaniels had been previously much attached, was so greatly dreaded and disliked by them, after he had been bitten by a mad dog, though without exhibiting any symptoms of Rabies, that when he came into the house, they ran up stairs into the garret to avoid him; and could not, by any means, be reconciled during a period of three years!

If this pretended horror and aversion were really felt by dogs on the approach of one of their own species, when under the influence of *Rabies;* it surely would not happen for so

* Dr James's Treatise, p. 31.

† Lommii Med. Observat. lib. i, p. 65.

many of them to be bitten: for it is generally known that mad dogs run with a faltering and irregular pace, and do not usually pursue objects; but merely snap and bite at them, as they pass. This very circumstance in some measure accounts for the apparent submissiveness of dogs when bitten; as they are often taken by surprise, and the object of offence eludes their resentment by immediately pursuing his irregular course *.

It seems improbable that a ferocious dog like the English mastiff, or Irish greyhound, would avoid a contest with any other dog that might attack him, unless instinctively deterred by some peculiar scent or exhalation incident to the diseased animal: but, without assigning any such cause, the fact has been insisted upon, so pertinaciously, by various reporters, who could not have had any inducement to disguise or misrepresent it, that it has been, almost universally, admitted to be true †.

It has been enrolled among the instinctive antipathies of the animal, in like manner as the inclination to devour grass is referred to

* Medical Comment. D. i, vol. iii, p. 290.

† Ambrose Parey, Heister, &c.

a natural appetite for the means of evacuating bile, and relieving obstructions of the gall ducts *.

Thus it was commonly believed, that those who had the misfortune to be bitten by a Dog, from whom others ran away, were in danger of Rabies : and on the contrary, that if the Dog which inflicted the bite were not shunned by his own species, he was not under the influence of the disease at the time; and, consequently, they who were bitten, had no serious reason for alarm.

But, besides the improbability of the circumstance, it has happened that all the usual effects of a rabid bite have arisen from the bite of a dog, who was so fiercely contending with another, that he could not be taken away without force.

It must then be admitted, either that the account of fear, horror, and aversion, is incorrect; or that the bite of a Dog, not mad, is capable of producing effects similar to those which have been heretofore supposed exclusively to follow the wound inflicted by a rabid animal.

† Plutarch. de Solertiâ Animal. tom. x, p. 56.

Nor is this opinion at variance with the experience of past ages; for, from a very early period, it has been a common notion that the bite of an animal is very malignant when inflicted in a fit of anger *.

James describes a method recommended by the Academy of Sciences at Paris, on the suggestion of M. Petit, for the purpose of ascertaining whether a dog had been mad or not;—by rubbing a piece of meat on his teeth and gums after death, and offering it to another dog, who, it is said, will refuse it with terror, if the dead dog had been really mad; otherwise, will eat it with avidity †.

This appears to be one of those fables which are scattered so abundantly throughout the works of those authors who collect from report and hearsay, without attempting to investigate by reason, or to establish by facts. It is impossible to say in what degree the foam or saliva of the dog when dead, re-

* Plutarch. Symposiacon, lib. v, tom. viii, p. 714. Flori lib. ii, c. xv, p. 216. Senecæ Excerpt. Controv. lib. ix, Dec. 6, tom. i, p. 509 in notis. See also Morgagni de Causis, &c. lib. v, Ep. 61.

† James's Treatise on Canine Madness, p. 32, and 263.

tains the principle or the power of infection *: and it has never yet been proved that a dog in health will readily devour the excretion from the mouths of other dogs, who have died mad; or even not mad. No reliance, therefore, can be placed on such an experiment: and it should be discountenanced, because it is useless and fallacious.

An experiment somewhat similar had been mentioned by AMBROSE PAREY:—that of laying a piece of bread on the wound to absorb the discharge; and afterwards offering it to a hungry dog, who, if the animal that inflicted the wound were mad, is said to refuse it.

He adds that it was a common report, that such bread given to fowls would kill them, in a few hours †: but that he had disproved the assertion by trying the experiment. However, he believed, that when tried upon dogs it was conclusive; and accounts for it, from that exquisite sense of smelling by which they are so eminently distinguished ‡, and by which they avoid the

* Medical Records and Researches, p. 136, 537, &c.

† Caspar Bauhin.

‡ Ovid. Met. lib. iii, v. 212.

malignant poison *. Such was the theory of those times!

Lommius mentions the same experiment †.

But the discharge from the wound neither possesses any peculiar fœtor, nor is often in such quantity as to afford an opportunity of making a fair trial. It is indisputable, that in those cases in which the discharge is copious, the sanies issuing from the sore can not be the original matter of infection: and that whenever it has any peculiar fœtor, this ought to be attributed to the irritation artificially produced in the wound, by the applications made to it, rather than the natural malignity, or any other property of the virus:—therefore this experiment is as objectionable as that referred to by Dr. *James*.

James denies that a dread of water is one of the symptoms of Rabies in Dogs ‡. On the contrary, Ambrose Parey, in his description of Canine Madness, expressly stated, that the diseased animal is seized with a

* Ambrose Parey, book xxi, chap. 11. Johnson's translation.

† Lommii Medicinal. Observat. lib. i, p. 64.

‡ James's Treatise, p. 10.

tremor at the sight of water, so that *even his hair stands up on end* *.

There is no reason even for supposing that either of these authors had seen the regular progress of the disorder: and the cases which they have severally detailed are so much confused, with respect both to the nature and succession of the symptoms, as to detract considerably from the weight of their testimony.

HEISTER seems only to have copied the description of the disease from his predecessors. He says when a dog is mad, he foams at the mouth, and lolls out his tongue; claps his tail between his legs, and runs up and down incessantly, as if pursued. He barks with an hoarse noise, *and is afraid of every animal that comes near him*, snapping at every one he meets, even at his own master, on whom he used to fawn. *Other dogs are afraid of him, and avoid him* †.

The symptom of foaming at the mouth does not take place until late in the disease:

* Ambrose Parey, book xxi, chap. 12, Johnson's translation.

† Heister's Surgery, vol. i, p. 99.

but HEISTER had probably never seen it; for, as before observed, he has exactly followed former writers.

In the natural and healthy state of the dog, the hair is observed to be sleek, smooth, and shining; or, rough and curled, according to his particular class; his ears somewhat elevated from the head, and hanging loosely. The tail of some dogs is curled up on the rump: of others, and particularly of those which have short hair, hanging down, but with the point always somewhat elevated and turned upward, particularly when they run.

On the contrary, when dogs are attacked by Rabies, their hair loses its lustre; and those with curled hair look dirty and rough, as if heated and tired: and the tail is almost invariably drawn, reversed between the hind legs, in the same manner as amongst dogs which, when much frightened, run from their pursuers.

With regard to the presence of Hydrophobia in the Dog, it is at all events extremely doubtful: the accounts delivered of it can in very few instances be depended on: and the concurrent opinions of most of our

contemporaries is against it. The abstinence or aversion of all animals from food and drink in the more advanced stages of the disorder can not be attributed to this symptom; and the miraculous, or rather fabulous, relations of those who have attempted to establish it as a fact, only serve to contradict and disprove it *.

* Hughes's History of Barbadoes, p. 33.

CHAP. II.

ON THE CAUSES OF RABIES AMONG DOGS.

THE causes of Rabies are enumerated by BOERHAAVE and other authors, as consisting in sultry heat, putrid aliment, scarcity of water, worms bred in the brain or viscera *, &c. But DIOSCORIDES, PAUL ÆGINETA, and ÆTIUS, on whose authority these assertions were principally founded, acknowledge that the disease also takes place during the winter: and it is a fact sufficiently established, that Canine Madness does not more frequently arise in hot climates, than in regions which are more temperate. However, the notion of the disease being most prevalent in the heat of summer has been not only very general, but of great antiquity: and this idea seems to have been connected with the celebration of the *festum Cynophontim* (or Κυνοφόνια) of the Argives †.

* Boerhaavii Aphorism. MCXXXIV.

† Casaubon, Animadvers. in Athenæi Deipnos. lib. iii, p. 197.

In the island of *Antigua*, where not only the air is very hot, but water scarce, the distemper is said to be unknown: whereas in situations almost completely opposite, where water abounds and the temperature is far more moderate, Rabies is observed to arise and to prevail in the spring and autumn, as well as in the heat of summer *.

In the winter of 1807, Canine Madness raged epidemically, at *Dover*, and in some of the neighbouring towns.

In some of the West-India Islands, Rabies, although for many ages unknown, afterwards became epidemical.

Moseley, in his Treatise on Tropical Diseases, observes:

"In 1783 Canine Madness prevailed in *Hispaniola*, and *Jamaica*. It was said, at first, that it was brought to *Jamaica* from *Hispaniola*, but experience proved the fact to be otherwise.

"The common notion that this disease among Dogs can only proceed from the poison of an external bite; or that it originates in some particular dog, from internal disease, and is by him disseminated; has

* Moseley.

excluded the idea of spontaneous madness, arising *from some peculiar influence in the air*. But this influence of the air generated the Canine Madness, in the year 1783, in the West-Indies: for it was general, and *many dogs were seized with it, that had no communication with others: and some dogs which were brought from Europe and North-America, and that were not on shore, went mad on their arrival in the harbours of the Islands.*

"In *Venice*, it is the common opinion that the disease is often occasioned by thirst: for which reason all barbers, shoe-makers, and coffee-house-keepers, are obliged to have a small tub or pan of water before their doors, particularly in hot weather, that the dogs running about the streets may drink when they want, as there are no places in that city where they can supply themselves with fresh water *."

Among the ignorant, it has ever been supposed that the bite of a mad animal is the only means of producing the disorder.

Even persons conversant with diseases, and well acquainted with the influence of

* Moseley's Treatise on Tropical Diseases, p. 48, 49.

the atmosphere in producing them, at particular seasons; and, under certain circumstances, of rendering them more generally prevalent; have overlooked or neglected the important doctrine above advanced. But it has been admitted, notwithstanding the prejudices of a sceptical and hypothetical æra, by the candid, enlightened, and learned in most of the Universities and other seminaries of medical education not only in this Country but throughout *Europe* and *America*.

Boerhaave remarked, that *Rabies* arose from *internal causes, without any previous contagion*: but he says nothing more than Oribasius and Ætius had previously delivered, respecting the origin of the disease *. He does not even hint at its ever having been thought epidemical.

Van Swieten said, that it had been proved by innumerable observations, that Dogs became raving mad, without any infection received from another mad animal, and consequently that the poison must be originally generated in themselves: but he goes no farther †.

* Boerhaavii Aphorism. Sect. MCXXXIII.

† Van Swieten's Commentaries, vol. xi, p. 169.

If the statement that the Dogs brought from *Europe* and *America*, into the harbours of the Island of *Jamaica*, went mad spontaneously on their arrival there, without having had any communication with the dogs on shore, wanted any confirmation; it might be derived from the experience of every attentive person who has seen the prevalence of the disease in this Country; for he must necessarily have observed, that whenever Canine Madness appears, the number of dogs seized naturally, that is, without having had any intercourse with other dogs, always bears a great proportion to the number among which the disease is disseminated by biting.

Why, then, should it be thought more incredible that a disease so uniform in its progress and termination, may be dependent upon atmospherical influence, than other diseases less regular in their symptoms and duration?

It is not, however, surprising that a doctrine which plainly contradicts long-established opinions, and is subversive of some of those prejudices which are too often cherished with religious obstinacy, perhaps be-

cause they contribute to the emolument of the Faculty, should be opposed by many; or if admitted, admitted with reluctance: but it is truly astonishing, that there are some who readily allow that various states and conditions of the system are peculiarly adapted for the reception and communication of the disease; but yet deny the influence of the atmosphere in generating it; although they acknowledge that that influence is capable of producing those states and conditions in which Rabies, as before mentioned, is found most frequently to arise.

After the proofs which have been adduced, on such indubitable authority; and after such positive and convincing evidence, none but the ignorant or the obstinate can assert that the hydrophobic poison has no *other fomes but a diseased subject* *.

On the generation of Rabies, or a disposition to receive the infection of the disease, through excess of exercise, and long-continued muscular exertion, it may be remarked, that *Rabies* does not arise more frequently among those animals which are employed in the chase, and consequently heated as much

* Adams's Observations on Morbid Poisons, p. 380.

as possible by violent exercise, than in others of a different description, and more sedentary habits.

Madness, however, does frequently happen in the kennel: and as hounds are usually kept much together, and free from the intercourse of other dogs, this circumstance affords an additional proof that the disease arises spontaneously, or without biting.

In opposition to the notion, that putrid aliment contributes to the production of the disease, it has been suggested, that dogs naturally prefer it to all other food. Indeed, it is well known that in kennels, the stronger dogs seize upon the carrion, while the weaker hounds are driven to the meat, and other substances prepared for their food, by boiling, &c.

Also, in *Africa* and *America*, where numerous herds of buffaloes are destroyed, in order to obtain their skins; and the carcases left to rot on the ground; thousands of Dogs are not only wholly sustained, by feeding upon them, but will gorge themselves therewith to the most painful state of distension; and yet Canine Madness is not so common a disease, there, as it is in *Europe*.

This is sufficient to contradict the speculative opinions of those who have numbered putrid food amongst the incitements to *Rabies;* without entering into a minute enquiry whether Dogs prefer animal food, on account of the condition of it with regard to freshness, or putridity, or not?

The acute scent of Dogs is undoubtedly increased, and even in a very great degree, in consequence of the quality of their nutriment: and this property being peculiar to the species, it is reasonable to suppose, that nature has given them a consciousness of the benefit to be derived from such food, and an instinctive desire of it *.

Sportsmen so well know the advantage of feeding their hounds with a due proportion of meat, that on some extraordinary occasions they prepare particular dogs for the field, by giving them fresh meat of the best quality.

Although hunger and necessity may make carrion not only palatable, but even delicious; it is extremely probable that fresh meat would, in general, be preferred, if they could obtain it: for Dogs, however

* Spectator, vol. ii, No. 120, 121.

ravenous, do not feed so indiscriminately, as many species of animals less domesticated, nor even as swine: for the latter devour their own species greedily; and sometimes even their own offspring; but as the common proverb expresses it:—"*Dog will not eat Dog:*"—that is, they do not voraciously devour the dead carcases of their own species.

If the supposition, that putrid aliment is capable of producing a disposition for Canine Madness, had been assumed only by those who believed the disease to have a putrid tendency; the error might have been corrected by reminding them, that such diseases are never known to happen, from the use or such food. That even those creatures, which are wholly supported by it, are free from such disorders; and that in the countries and places in which fevers have raged with the greatest violence, the inhabitants are not accustomed to consume so great a proportion, even of animal food, as in other situations where those diseases are far less frequent.

Water is so essentially necessary to the life and health of every animal, that a privation of it may be justly reckoned among

the exciting causes of many disorders. It is required fresh and pure; for, when contaminated by filth and putrefying substances, it must have a tendency to produce irregularity and diseases in the system.

It has been said, that Dogs never perspire, and that, on this account, when their natural heat has been considerably augmented by exercise, they require a larger quantity of drink than other animals *. It is indisputable, that the salivary secretion, and the discharge of moisture, which in Summer, and when Dogs are much oppressed by heat, constantly distils from the mouth, must be of greater consequence in proportion to their deficiency of perspiration.

It is difficult to conceive, that no exhalation takes place from the skin of an animal, apparently constructed in a manner not at all different from that of many other quadrupeds, which are known to perspire abundantly; but the most accurate observers have never been able to discover, either on the hair, or otherwise, the least trace of perspiration.

However this may be, water, as has been before observed, is so essential to the health

* Mead's Essay, p. 80.

of Dogs, that the want of it may be reckoned amongst the exciting causes of *Rabies*, as well as other diseases *.

The only reason for supposing that worms are an exciting cause of this disease, seems to be, that a great number of them are often found in the intestines of Dogs, on dissection. This must necessarily happen, from the nature of their food, and from the detention of considerable portions of it, undigested, in the first passages.

Nothing, however, can be gathered from the observations of those who have dissected dogs destroyed by this disease. Either the dissections have been performed so long after death, that the natural structure of the parts had been altered by putrefaction; or the appearances have been described so vaguely, that little or no dependence can be placed on the accounts delivered of them. Many of the worms found in Dogs are probably generated, after the extinction of life: and there is no proof of their being more numerous in the bodies of those which died of Rabies, than of any other disease.

* Buffon's Nat. Hist.

It would be a desirable object, to collect a series of well-authenticated dissections of Dogs, that have died from the natural effect of the disease:—but this is scarcely possible: and it must always admit of much doubt, what are the characteristics of Rabies discoverable on dissection; because Dogs, in very various states and conditions, are capable of producing the disease, by the inoculation of their saliva.

Inflammatory appearances of the Brain do not necessarily prove the occurrence of Rabies. They are observable under a variety of circumstances entirely different from the symptoms of that disease.

Inflammation of the stomach and œsophagus, is also observable in other diseases; and especially when mineral poisons have been exhibited medicinally.

In short, hitherto, the dissection of Dogs has afforded no elucidation whatsoever of the nature of Rabies.

The true cause of Rabies, that is, the original germ, or principle of the disease, is only to be found, as *Dr. Moseley* has excellently remarked, in the atmosphere which

surrounds us, and the air we breathe. The specific infection having been once produced, is propagated by the intercourse which Dogs have with each other, like other epidemics among different species of animals.

The laws by which the occurrence of the disease, as an epidemic, is regulated, are to be learnt only by long and attentive observation. That they are influenced by those particular conditions of the animal, which are the effect of his mode of living, can not be doubted: and whatsoever is capable of exciting anger and agitation, seems likely to contribute to the production of *Rabies*.

A long series of observations would be necessary for the establishment of correct opinions respecting the periodical returns of this disease among Dogs.

From what has been already advanced, it may be collected, that at various periods Rabies has so taken place as to leave no room for doubting the fact, that, like other epidemics, it visits different districts and countries periodically. It has been before remarked, that it prevailed in *England* with violence during the three years last past. It was also very general in the year 1788, and

about the years 1774, 1762 and 1752: but it is to be regretted, that no accurate history of the progress or continuance of the disorder has been preserved.

It is plain, that the causes before enumerated, are not sufficient, even in combination, to produce the disease. The concurrence of circumstances necessary for generating Rabies, whatsoever they may be, are not frequently produced, or brought into action. In this country, where, as I am informed by a most learned and distinguished Naturalist, the number of Dogs may be computed at six or seven millions, the Rabies is found only to prevail at distant periods of time. In small islands, where there are, comparatively, few of these animals, an exemption from the disorder is therefore not to be considered a deviation from the ordinary laws of nature: but, certainly, it affords an additional proof and elucidation of the justice and propriety of the doctrine of its atmospherical origin and epidemical nature.

CHAP. III.

ON THE METHODS OF PREVENTING RABIES AMONG DOGS.

AMONGST the most valuable improvements of modern times, may be justly included the advancement which has been made in the studies of comparative anatomy, and the diseases of animals. It is, however, to be lamented, that humanity and science have been alike ineffectual to subdue the malady under consideration; for, whenever it appears, it is universally regarded as the harbinger of death.

From despair of relieving this fatal disorder, the attention of the public has been directed, principally to prevent the infection from spreading; and to secure the uninfected from its influence.

PLINY slightly mentions, that to prevent madness in Dogs, hens' dung should be mingled with their meat for thirty or forty days, but that if they are tainted with the Rage, *Hellebore* should be given them*.

With the solitary exception of *Dr. James*,

* Hist. Nat. lib. viii, c. 40.

who recommended *Turbith Mineral*, and exhibited it to a pack of fox-hounds, there is scarcely any modern author, who has attempted the cure of the disease in Dogs. JAMES gave the Turbith in doses of twelve, twenty-four, or forty-eight grains, at intervals of twenty-four hours between the doses: and he speaks of it with great confidence.

If, as it has been said, the efficacy of this medicine entirely depend on its purgative quality, a dose of Rhubarb or Jalap would be of as much utility. It is to be regretted, that persons who, from the nature of their pursuits, seem most likely to be capable of elucidating the practice best calculated to remove the disease in Dogs, have had the assurance to recommend specifics for the Hydrophobia in mankind, without making any effort to cure the Rabies in quadrupeds. Of cure, therefore, we know nothing:—with regard to prevention, it is certainly a becoming precaution to confine Dogs separately, whenever the disease appears, on account of the disposition to bite, which takes place even in the early stages of it.

The extensive mischief which has often followed a neglect of this precaution, is suffi-

cient to remove from every considerate mind the idea, that there is an unnecessary degree of severity in the constraint practised on such occasions.

The use of muzzles to prevent Dogs from biting, is neither a sufficient, nor a proper precaution: for Dogs, in whom the disease is generated, although they may not, for a considerable length of time, exhibit symptoms of madness, are, nevertheless, every moment liable to them: and *it is impossible, from the appearance of such Dogs, to form any judgment whether the disease will, or will not, eventually take place.*

Besides, muzzles, which prevent Dogs from drinking, are highly improper:—especially when they interrupt free respiration, and the discharge of that salivary matter which distils from the tongue and fauces, whenever they are heated by exercise; and which is commonly believed to make up for the deficiency of their perspiration.

In *London*, the immense numbers of these animals, which are entirely useless to the generality of their keepers, consume daily, much of that food which would feed the poor.

Dogs may minister to the luxury, or rather to the folly and caprice of individuals; but, instead of contributing to the security of persons or property, they are productive of great disturbance and injury to both. Passengers in the streets are perpetually suffering annoyance; and the goods of tradesmen, and various articles of commerce, are frequently damaged by them: vegetables, and other articles of food, rendered filthy and abominable. The mischief thus produced, is even more extensive than can be well conceived.

There is reason to believe, that many fine horses are stolen for the purpose of destruction, and the supply of Dogs' meat: and the facility of thus disposing of their carcases becomes a double incitement and temptation to the horse-stealer; because it promises security from detection, as well as pecuniary advantage.

In the year 1807, a very valuable blood-horse, which had been stolen, was traced to one of the slaughter-houses, from which the kennels in the vicinity of *London* are usually supplied.

Lap-dogs, and all of a similar class, only

serve to consume provisions, of which many poor distressed families would be glad to partake; and occupy a portion of time and attention, which, at least, might be better employed.

The Danish Dogs which are, every where, seen accompanying carriages about the streets of *London*, are objects of continual alarm and terror to those classes of the community who are under the necessity of walking:—these may certainly be reckoned among the least useful, if not the most mischievous of the species; and from the rapidity with which they are often hurried about, are peculiarly liable to become diseased.

It appears, therefore, not only that the confinement of all Dogs, without exception, whenever the disease prevails, might be effected, without any evil resulting from such a measure; but that a considerable reduction of their number would be salutary and advisable.

If the affluent should insist on their right, in this instance, as in every other, to enjoy their wealth in the manner most pleasing to themselves, they ought not to object to any increase of taxation, which so fair a subject

for impost obviously presents to the ministerial financier.

The poor, who frequently disperse to their Dogs a large portion of their children's bread, ought not to repine if such a measure, calculated at once to promote the interests of the community, and of humanity, should deprive them of a filthy, mischievous, and dangerous inmate, from whom it is impossible for them to derive any real benefit or comfort.

Regulations, which tend to reduce the number of Dogs, may be reckoned, therefore, among the wise and salutary means of preventing *Rabies*: but, so long as the nature of this contagion shall remain unknown, and the laws of its operation in the system be undiscovered, every attempt to guard against its attacks must necessarily be merely conjectural and uncertain.

The purification of kennels, and other places in which diseased animals have been kept, is another method of preventing the dissemination of this malady. It has been the practice among fox-hunters to keep a flock of geese in the kennel where mad Dogs have been, as the best method of destroying the infection: and it is asserted, that this has

been found far superior to frequent ablutions *.

Fumigations also have been employed, of various kinds, such as frankincense, rosin, pitch, tar, gums, &c.

They were probably derived from the Mosaical customs mentioned in the Sacred Writings†: and they were certainly employed in early times for the particular purpose above alluded to, for VIRGIL directs the husbandman to drive out venomous reptiles from the stables and cribs by the fumes of cedar and galbanum.

"Disce et odoratam stabulis accendere cedrum,
"Galbaneoque agitare graves nidore chelydros." ‡

White-washing the walls, as it is usually termed, with lime supersaturated with acids, is undoubtedly a commendable practice; and the utmost care should be taken to wash away every particle of filth, which might have been left by the diseased animals.

It was a common notion among the Ancients, that a Dog, which had lapped, or

* James's Treatise on Canine Madness, p. 19.

† Exodus, ch. xxx, v. 34. Proverbs, ch. vii, v. 17.

‡ Virgil. Georgic. lib. iii, v. 414.

tasted the milk of a woman who had a male child, would never go mad *!

PLINY relates, from COLUMELLA, that if a whelp's tail be bitten off at the nethermost joint, and *the string* taken away, neither the tail will grow again, nor the Dog ever go mad †!

The custom of *worming Dogs*, has been ignorantly supposed capable of preventing their ever being affected with Rabies. This error also is very ancient.

PLINY says, there is a little worm *in the tongue* of Dogs, called by the Greek name λυττα, which, if taken out when they are young whelps, they never go mad, nor lose their appetite ‡.

From the period in which PLINY lived, almost until the present time, the same idea of the efficacy of this practice has continually prevailed: and, in spite of numerous proofs to the contrary, is still cherished by many of our contemporaries.

The following extract, from a communication inserted in the Newspaper, called the

* Plinii Hist. Nat. lib. xxviii, c. 7.

† Ib. lib. viii, c. 41.

‡ Ib. lib. xxix, c. 5.

Bath-Herald, of the 6th of *February* 1808, I have preferred to many similar examples, as it has every mark of authenticity, and corrects the erroneous notion above mentioned; as well as another, before noticed, *viz. that dogs in health instinctively avoid, and run away from dogs that are mad.* The narrative is as follows:

"A hound, supposed to be mad, passed "through my father's garden, skirmishing, "as he passed, with several of my father's "Dogs, and with my spaniel:—the former "were all destroyed; but as I was not con- "vinced that the hound was mad, I did not "destroy the spaniel; and, as *he had been* "*wormed when a puppy*, and had overtaken "the hound, and *had a second bite with him*, "*I was confirmed in my opinion, that there* "*was no danger; from the general notion,* "*that dogs in health will not pursue a mad* "*dog.* I came up during this battle, and "separated the dogs, when the hound snap- "ped at me, and went off, and I could ne- "ver get any subsequent intelligence of him. "This was in the month of *August.* About "three weeks after, I went to the river to "shoot wild fowl, taking the spaniel with

" with me, but soon observed that he would " not go into the water, as usual; and when " driven in a little way, he soon returned, " shivering, and I could not make him go " in again. I had with me a young pointer, " which the spaniel made up to, on his re- " turn from the water; turned him on his " back, and bit him several times. The next " day, as the groom was trimming my horse, " the spaniel came out of the stable, jumped " up to the horse's lip, and left slight marks " of his teeth, but which appeared like two " mere scratches. Both dogs were confined. " The spaniel daily got worse. About the " fourth or fifth day, he got loose, with his " chain on, went into the kitchen, and lay " under the table while the servants were at " dinner. He did not molest any one, nor " at all incline, *like dogs that are not* " *wormed*, to run away, and snap, indiscri- " minately, at every thing they pass; but, " on being taken back, and fastened up, " near the stable, *he lay, and bit the straw*, " refused food, and sprung from water, as if " it would scald him. In a few days he died.

" The young pointer had all the symptoms " of the malady usually described. Being

" convinced that he was perfectly mad, he " was shot with a pistol.

" The horse was sent to an eminent far- " rier who burnt the bitten part of the lip, " and gave him *the Ormskirk medicine.* I " drove him two or three months in a cur- " ricle, but observed that he continually " rubbed his lip on the manger. At length, " I found that he had imbibed the fatal poi- " son. The time which had elapsed from " the day he was bitten, till that when he " was taken mad, was exactly six months " and a fortnight *. As his recovery was " evidently impossible, I soon had him " killed."

It may not be improper to remark, that the difference of the symptoms in the two dogs, one of which did not manifest the usual disposition to bite persons, and the other, that did, is not fairly attributable to the operation of worming; for the Dog that had undergone that operation seems to have been affected with that species of Rabies which is vulgarly termed the dumb madness, in which it is usual for the animal to remain dull, stupid, and sleepy, instead of being

* See page x.

restless and fierce: and it can not be supposed that this circumstance ever depends on the extraction of the *lytta*, as it is often known to occur when it has never been touched.

JAMES denied the utility of worming dogs; but shewed his want of experience as a dog-doctor by his description of the operation. It is true that he declares his belief that there is *no worm in the tongue*; but he afterwards calls the substance extracted, *a nerve* *.

Some authors have supposed it one of the sublingual glands: others, a cartilage.

CODRONCHIUS said it was a nerve in the shape of a worm †.

MORGAGNI called it a tendinous ligament. He describes it as a slender round body, varying in proportion to the size of the dog's tongue, from one inch to three inches in length; beginning at or near the border of the apex of the tongue, and contract by degrees, until it terminates in a kind of tendinous thread, running deeply among the interstices of the muscular fibres of the tongue; but not attached to them;

* James's Treatise on Canine Madness, p. 204.

† Codronch. De Rabie, lib. ii, c. 10.

being every where covered or enclosed as in a kind of sheath by the membrane of the tongue, from which it is easily separated.

The learned Author declines giving an opinion whether the *lytta* be a muscle, or a peculiar body designed to give firmness to the tongue, and assist in its motions. The latter is evidently the most reasonable notion; and it seems corroborated by the effect observable on its extraction *.

Hamilton seems to have implicitly believed all the absurdities which preceding writers had delivered on this subject: and he even published a print in which this imaginary tendon is represented running along the inferior side of the tongue, in the part called by Winslow *linea linguæ mediana*; and terminating in a tendinous cord at the marginal line or lower edge of the point of the tongue †.

The method of worming is described to consist in the elevation of this *tendon* with

* Morgagni, De causis et sedibus Morb. lib. i, Epist. 8, 35.

† Winslow's Anatomy, vol. ii, p. 442, sect. 505.

a sharp-pointed instrument, and its subsequent extraction by the forceps or fingers *.

It is astonishing that it should not have occurred to these authors, that if the substance were really *a tendon, it could not be extracted* in the manner they have described. Its attachment would have been too firm, to allow an easy separation: and the loss of it would have deprived the animal of the power of retracting his tongue.

The best account of the *lytta* is, that it is a membranous substance, moderately firm, and inclosed in a duplicature of the membrane which lines the mouth, and constitutes the frænum of the tongue. This folded membrane in young Dogs being torn, the *lytta* may be pulled out without difficulty, or being productive of any other inconvenience than that of rendering the mouth sore for a short time.

The removal of it, indeed, corrects the disposition which whelps have to bite and knaw every thing within their reach: probably, more by making the mouth sore, than any other effect: but Authors have contra-

* Hamilton's Treatise. Encyclopedie Methodique, Art. Chien. p. 149.

dicted one another so much respecting this operation of worming; some of them maintaining that half the dogs in the world are whelped without the *lytta*, others contending about the nature, form, and consistence of it, and others about the effect of its removal, that, perhaps, Dr. *Samuel Johnson* was not far from correctness of definition, when he calls it *a substance, nobody knows what, extracted nobody knows why.*

It is unnecessary farther to insist upon the inutility of such an operation, for preventing Rabies: although it seems to be proper to notice a practice which has prevailed during so long a period, and to guard the Public against any reliance upon it.

The principal preventive in our power to regulate or direct, is a due attention to the food and drink of dogs; which ought to consist of a proper proportion of animal and vegetable substances, blended together, and deprived by boiling, or otherwise, of a tendency to immediate putrefaction *. It has been suggested, that potatoes, and other farinaceous substances, afford the most whole-

* Encyclopedie methodique, p. 141, De la nourriture des chiens.

some nutriment; but when conjoined with a portion of meat, they are undoubtedly better calculated to sustain the strength and vigour of the animal, than either of those kinds of aliment separately.

Excess of food is as injurious as the want of it. Young dogs, over-fed, are rendered unfit for the chase, become diseased and rotten *.

Cleanliness and exercise are also essentially necessary to the health of Dogs, consequently to the prevention of diseases. Sufficient attention has not been paid to these particulars, either among domestic Dogs, or those confined in kennels. The latter are exercised irregularly, and sometimes to excess: the former are scarcely exercised at all. Costiveness from these causes, is another incitement to disease, which should be vigilantly guarded against.

The Lap-dog is perhaps most liable to suffer from constipation of the bowels. Pampered in the luxuries of the table, and gorged with delicacies utterly unfit for his stomach, the little feverish animal acquires an increased disposition for disease, at every meal; and,

* Xenophon. cap. vii, *s.* ϛ. tom. v, p. 138.

deprived of the advantages of air and exercise, is rendered less able to contend against it, than Dogs of a different class, who roam at large, and follow, unrestrained, the wholesome dictates of natural instinct *. Privation of exercise, therefore, is doubly prejudicial, for it thus destroys health both positively and negatively.

It may be also added, respecting Lap-dogs, that those little favourites of the Fair, are become objects of temptation to the plunderer, on account of the value of their skin. Many ladies have recognized their lost Lap-dogs in the covering of a muff: and in the Metropolis scarcely a week passes, but some of these beautiful little creatures are inveigled from their mistresses in the streets, or from the doors of their houses, and transferred by the dog-stealer to the slaughterer.

A gentleman, who has kept large packs of hounds for many years, says, that since he has adopted the rule of never admitting a fresh dog into his kennel, without a sort of quarantine, by keeping him for five or six

* Haller's First Lines. Jenty's Lectures, vol. iii, Lect. 2, p. 39.

weeks in a separate place, he has never seen an instance of Rabies among his dogs.

This precaution is certainly better than none at all: but for the reasons before stated, both with regard to the origin, and the uncertain progress of the disease, it can not be conclusive.

The restraints of quarantine, although sanctioned by the wisdom and authority of the legislature in different countries, and during so long a period, are in truth not only nugatory, but ridiculous; and any efforts to prevent the generation of Canine Madness, founded on principles so much at variance with sound reason and true policy, would be found highly injurious. A disease dependent upon a combination of various causes, perhaps inscrutable to our most diligent researches, and which has certainly hitherto eluded them; visiting the earth after irregular intervals, and apparently exhausting its powers only by the destruction of its victims: if regulated, as there seems to be such strong reasons for believing, by atmospherical contingences; such a disease can not be exterminated by any cautions or

restrictions, unless mankind could change the very nature of the animal, or had power to "*bind the influences of Pleiades, or loose the bands of Orion.*"

CHAP. IV.

ON THE COMMUNICATION OF RABIES TO THE HUMAN RACE; AND THE OCCURRENCE OF HYDROPHOBIA.

IT was remarked, in a former Chapter, that Rabies can not be communicated to the human species, unless by the introduction or inoculation of particles of the salivary secretion formed by a dog, or some other animal, which has either generated the infection in its own body, or received it from the bite of a diseased animal.

Experience has established this fact, although many of the Ancients believed that the breath of a mad Dog, being inhaled, was sufficient to produce the disease in the human species. ARETÆUS expressly maintained this opinion *.

CŒLIUS AURELIANUS relates the case of a woman who is said to have become hydrophobous, in consequence of wetting, with

* Aretæi de signis et causis acutor. morb. lib. i, c. 7.

her tongue, the folds of a cloak which had been torn by a mad animal *.

FERNELIUS says, that a mad wolf was hunted and killed; and that several persons ate of the flesh, who all died of the disease soon afterwards †.

PALMARIUS related, that cattle, having eaten the straw or litter on which some mad swine lay, were seized with madness, and died ‡.

VALENTIANUS thought the breath of a mad Dog infectious §.

HILDANUS attests a circumstance somewhat similar to that related by CŒLIUS AURELIANUS:—that a woman was seized with *Hydrophobia*, and died, in consequence of putting a thread in her mouth, with which she had three months before mended her gown, that had been torn by a mad Dog. He mentions several instances of persons dying from the bite of mad dogs. He says, that *Baldus*, a Lawyer, was bitten on his lip by a Dog, and died some months after-

* Cœlii Aurelian. Acutor. Morb. lib. iii, c. ix, p. 218.

† Fernel. de Morb. contag. lib. ii, c. 14.

‡ Palmarii Lib. de Morb. contag.

§ Valentian. Lib. iii, c. 9.

wards. A girl, fourteen years of age, bitten by a mad Dog, died mad three months afterwards. *Daniel Perrin*, aged twenty, was only scratched by a mad cat, so that the cuticle of his right thumb was wounded. This was in the time of harvest. In the month of *March* following, he was seized with Hydrophobia, and died mad.

Hildanus notices excruciating pain near the wound, and lividness of the cicatrices for several days before the occurrence of fatal symptoms. He mentions one person, who, being bitten on the fifteenth day of *February*, died in *April* following, but without *Hydrophobia*. The wound had been cauterized, the common remedy for ages: but that did not avail. He observes, that the reason of its failure might be, that it was not burnt sufficiently deep *. The doctrine of absorption was not then understood.

Schenckius tells a story of a boy who became infected by cutting his finger with a rusty sword with which, some years before, a mad Dog had been killed †.

Zacutus Lusitanus mentions, from

* Hildan. Op. p. 62. ad Roscium. Ed. Francofurt.

† Schenckii Observ. Medicin. lib. vii, p. 848.

SURIUS, that an inn-keeper at *Wittemberg* gave his guests some flesh of a pig to eat, which had been bitten by a Mad Dog:—that they were all seized with madness; and tore their own flesh with their teeth.

He also quotes from PALMARIUS, that a man who had become mad from the bite of a dog, and was at the point of death, kissed his children; and, in seven days after, they were all seized with the disease, and died *.

All these accounts of the communication of the disorder, by mere contact, appear to be fabulous; and, notwithstanding the atmospheric origin of the disease, and its frequent prevalence as an epidemic among dogs, there now exists no kind of doubt respecting the mode, by which, as before mentioned, it can alone be communicated to the human race.

A bite, or the infliction of a deep wound, however, is not necessary for the inoculation of the disease. The infectious matter being applied to any part of the body, divested of the cutis, is quite sufficient. A recent instance occurred, in the county of *Kent*, of Hydrophobia, and other symptoms of Rabies,

* Zacut. Lusitan. tom. i, p. 841, Quest. 23.

which terminated in death, being produced by suffering a dog, apparently in health, to lick an ulcer in the leg of a poor man who had been persuaded of the sanative influence of that practice.

It has been a question, whether the claws of a mad animal are capable of inoculating the disease. The observation of *Hildanus* has been just now quoted.

As it appears to be the introduction of a morbid salivary secretion which generates Rabies,—it might, perhaps, be denied, that a wound inflicted by the claws of any animal could partake of the peculiar nature of this disorder, if we did not reflect, that the animals, among which Rabies most prevails, are of that species which are almost *characterized*, by licking their own paws; and, consequently, that their nails are thus liable to be covered with a portion of the salivary matter, by which, when inoculated by means of the teeth, the disease is acknowledged to be produced. In no other manner can a wound made by the nails of the animal be supposed dangerous, but in consequence of thus receiving a portion of the infectious matter.

This animal poison differs from every other,

in the peculiar symptom which it produces, —namely, *Hydrophobia*, a dread of water, accompanied by a painful spasm or convulsion of the throat. These, as far as they relate to the will or mind of the patient, are absolute and unconquerable.

It also differs from most other poisons, in the great length of time, during which it remains inactive in the system *: and in the circumstance that it is not usually productive of any peculiar *local* inflammation, at the time of its insertion, or even afterwards. Moreover, the infection is not found to grow milder by being communicated from one animal to another: for although, perhaps, there be no authentic instance on record of the propagation of the disease by the bite of a man, this circumstance is attributable rather to the cautions used to avoid the saliva of persons affected by Rabies, than to any diminution of virulence in the contagion, which is well known to have been communicated from wolves to dogs, from dogs to cats, horses, swine, &c. and these, in turn, biting others, and propagating infection in every respect similar; and equal in degree of violence. Hy-

* Boerhaavii Aphorism. MCXXXVII.

drophobia, the characteristic symptom of Rabies in the human species, is so remarkable, that it has usurped the place of the original term in the nosology of the disease *. This is improper, because it is in fact descriptive only of a single symptom; and although that symptom be of the utmost importance, and even apparently essential to the disorder in the human subject, it would have been evidently more correct to have used the term *Rabies*, which embraces a more extensive and complete idea of the disease †.

It has been proposed to call it "the Canine feverish phrenzy;" but such a change would be of little or no consequence, in the history of the disorder, unless to mislead the inexperienced, by conveying to them the erroneous notion, that this disease partakes of the nature of putrid fever; an idea which has no foundation whatsoever in fact and experience ‡.

Another objection has been made to the

* Cullen's Nosol. Method. Genus 64. Crooks de Tetano, p. 56.

† Mead's Essay, p. 78.

‡ Rowley's Rational Practice of Physic, vol. ii, p. 12. Morgagni de Causis et Sed. Morb. lib. 1, l. viii. 19.

adoption of the term Hydrophobia, as a generic name, grounded on the circumstance, that a dread of water is not confined exclusively to persons who have been bitten by a rabid animal; but sometimes takes place in consequence of hysterical affections, a disease of the œsophagus, or inflammation of the stomach *.

However, the occurrence of this symptom, in such cases, is so manifestly different from the manner in which it takes place, after the bite of a mad Dog, that no confusion or mistake can arise respecting them: It would, therefore, form no real objection to the employment of the term *Hydrophobia*, if that term conveyed a comprehensive idea of the disease.

Although the occurrence of *Hydrophobia* is not always the first proof of the infection of *Rabies* having been received into the human body, it so generally precedes the convulsive symptoms, that it is usual to consider it as the commencement of the disease.

The period which intervenes upon the bite,

* Lewis's Collection of Medical Facts and Observations.

before the occurrence of the disease, is much longer than after the introduction of any other known animal poison into the system.

It is undoubtedly regulated by the same laws which govern the reception of other infectious or venomous matter, such as those of the Small-Pox; of putrid bodies; the poison of Serpents; of Insects; the Cow-Pox, and other animal poisons; of which laws we are almost totally ignorant.

Those who imagine canine madness to be a species of putrid fever, and attempt to support their opinion by the appearances of a furred tongue, and putrid sordes about the mouth of dogs dying in this disease, have been so much at a loss to account for the inactivity of the matter during several weeks, or even months after its introduction into the human body; that they are disposed rather to deny the fact, than to relinquish their favourite hypothesis *. The fact is, however, so plain, that it will admit of no denial. It has been known, and acknowledged, ever since the disease was first recorded.

Dioscorides says, it is necessary to understand that *Hydrophobia*, or the dread of

* Rush, &c.

water, has no certain time of attacking people. It generally comes on in about forty days; but in some cases not until after six months, or even a year. There are writers, he observes, who assert that persons have been attacked by the disease after seven years *.

Galen relates, that he saw the occurrence of *Hydrophobia* more than a year after the bite was inflicted †.

Paul Ægineta says, the *Hydrophobia* usually comes on about the fortieth day; but in some cases not until six months after the bite: and that the disease is reported to have appeared even so long as seven years after it ‡.

Varignan states, that the poison remains latent, frequently for a year; but in some constitutions is productive of the disease in four days, a week, or a month, or six months §.

Fernelius remarks, that the bite of a mad dog infects by the virus contained in the saliva, or froth of the mouth. It pervades

* Dioscorid. lib. ii, c. 12.

† Comment. II. in I. Prædict. Hippocrat. Ch. tom. viii, p. 735.

‡ Lib. v, c. 3.

§ Varignanæ Secret. Medicinæ, Tract. iii, Serm. iv, p. 127.

the habit generally; but seldom before the twentieth day. In some cases, it is a year before the symptoms take place *.

Ambrose Parey remarked, that the same poison, in the same weight and measure, given to men of different constitutions, will kill one in an hour, another in six hours, or in a day; and, on the contrary, will not so much as hurt some third person †.

Morgagni refers to a case, in which twenty years are said to have elapsed between the bite of a mad dog, and the occurrence of the disease ‡.

Vander Wiel particularly remarks the circumstance, that persons bitten at the same time, and by the same animal, become diseased at very different periods §.

Claude de Choisel, quoted by *James*, speaks of thirty days after the bite, as the usual time for the occurrence of Hydrophobia: as does also Doctor Mead ‖.

Webster has related several cases in

* De morbis contagios. lib. ii, c. 14.

† Amb. Parey, B. xxi, p. 505. Johnson's edition.

‡ Epist. viii, Sect. 21.

§ Observ. Rarior. Cent. i, No. 100, p. 431.

‖ Mead's Essay.

which the infection was said to have been received *many years* preceding the appearance of *Hydrophobia* *.

Lommius says, that the disease is observed to arise after the different periods of fourteen and forty days, and six and seven months subsequent to the bite: and he notices the long period of seven years, during which, according to some Authors, the poison has remained inactive †.

Boerhaave mentions that the infection in some cases has been said to be twenty years before it produced its effects in the system ‡. This, probably, was copied from Morgagni. The period seems to vary in almost every instance.

When the infection has been conveyed into the system, the progress of the disease is extremely uncertain; all the varieties of constitution, and the idiosyncracy of every individual having a tendency sometimes to accelerate, and sometimes to retard or prevent the occurrence of rabid symptoms.

* Webster De Magiâ, and Hamilton's Remarks, &c.

† Lommii Medicinal. Observ. lib. i, p. 64.

‡ Boerhaavii Aphorism. sect. MCXXXVII.

Authors have employed themselves, and amused their readers, in calculating the number of persons, who, being bitten, escape the disease: but the peculiarity of this infection, which is always slow in producing its effects, affords a sufficient reason for the seeming escape of many from its dreadful consequences. Who can describe what is that state of the constitution in which it is least susceptible of the influence of this poison? or who can point out the method of producing such a condition of the body?

Notwithstanding the violent effects which occasionally follow the bite of a mad dog; the wound is generally not more difficult to be healed, than any other lacerated wound of the same part *.

In a few weeks, or even a few days, extensive injuries of this kind have become cicatrized under the ordinary methods of dressing, and even by the least skilful hands,—neither pain, swelling, excessive soreness, nor any other indication of malignity, supervening:—and, after they have been thus healed, they have remained perfectly well,

* Mead's Essay, p. 77. Philosoph. Transact. vol. xl. London Medical Journal, vol. viii and x.

during the life of the wounded person, unaltered by, or at the time of the subsequent *Hydrophobia*. This observation is justified by abundant experience, and it should operate as a caution to those, who, relying on the descriptions of the disease, given by inexperienced persons, expect to see the cicatrix of the wound always become inflamed, hard, elevated, or ulcerated, at the approach of *Hydrophobia* *.

On the other hand, there have been instances, in which the wounds resisted every application; and for a long time constantly discharged a fœtid sanies, very copiously: but sores, so evidently tainted with malignity, ought never to be permitted to remain for a single hour uncauterized.

It sometimes happens, indeed, that the wound, after having been regularly and perfectly healed, assumes an appearance of inflammation: a pricking pain is felt in it; and it is surrounded with redish or livid spots. Sometimes streaks run up the limb, and are sore when touched: and in other cases the wounded part becomes hard and swollen.

* Cœlii Aurelian. Acutor. Morb. lib. iii, c. 14, p. 226. James on Canine Madness, p. 21. Perceval's Hints towards investigating the Nature of Rabies, in the London Medical Journal, vol. x.

Here it seems as if the poison had lain dormant in or about the original wound, and that it was at length called into action, by some unknown operation in the system, like the Small-pox, and other diseases, which depend on the reception of infectious matter *.

As in the dog, so also in the human species, the interval whether long or short between the bite and the occurrence of the disease, presents no indication by which it is possible to judge whether Rabies will, or will not take place :—when it does arise, it has been generally considered fatal : and there are few persons who have survived the fourth day †.

It has been asserted, that the nearer the wound is to the salivary glands, the sooner *Hydrophobia* appears ‡. This is, probably groundless ; and it is not at all certain that there is any increase of secretion in the salivary glands themselves, until the muscles connected with deglutition have become violently affected by spasmodic contraction : for in some cases, even long after the commencement of that dread of water which has given

* Van Swieten's Comment. vol. ii, p. 198.

† Ibid. vol. ix, p. 170.

‡ Morgagni De causis et sed. Morb. l. i, Ep. 8. 22.

denomination to the complaint, there is no frothing at the mouth: whereas, this symptom must necessarily occur, if the quantity of saliva secreted, were increased.

It is not to be doubted, that the salivary matter, secreted at different periods of the disease, differs in degree of malignity, and in its capacity for exciting the disease: but experience not having yet ascertained, on what this difference depends, it would be wasting time in fruitless disquisition to enter into the theories which have employed some authors on this part of the subject*. The matter may differ also, at different seasons of the year; and perhaps may be most active when the disease is most violently epidemical among dogs. But of this there is no proof.

It has been said, perhaps by way of apology for the inconsistency and contradictions manifest in the accounts of this disease, that there are scarcely two cases in which the symptoms perfectly agree.

The remark is equally true and puerile; for neither are there two human bodies alike; —nor are the symptoms of any other dis-

* Mease's Essay on the disease occasioned by the bite of a Mad Dog, p. 45.

ease in exact agreement in different persons *.

The form and character of the disease, however, are so well ascertained, that a moderate portion of sagacity will be sufficient to discriminate between its regular and ordinary course, and those adventitious symptoms which sometimes depend on constitutional peculiarity; and are sometimes occasioned by the mode of treatment adopted for the prevention of the disorder.

It is absolutely necessary to make these distinctions;—for it is the want of them which has for so many years involved the subject in mystery and confusion.

In those cases, in which an alteration of the appearance of the part wounded, does not constitute the first symptom of the disease, and especially when the bite has been inflicted in any of the limbs; pain beginning near the bitten part, and resembling that of the rheumatism, is often the forerunner of this dreadful malady.

The pain is not always constant; but in some cases continues for half an hour, in others only for a few minutes recurring

* Fordyce.

at irregular intervals once or twice in a day, or in several days. It is followed by a benumbed state of the limb, which seems heavy and useless: but even this symptom, although strongly indicative of the progress of the disorder, is not *always* followed by *Hydrophobia.*

However, when it takes place, it becomes of the utmost importance to watch the succeeding symptoms, and carefully to attend to the first indications of hydrophobous affection.

Here, also, it is necessary to distinguish very exactly between the real and imaginary sensations of the patient, in whom the natural terror excited by the apprehension of so dreadful a disease, is occasionally productive of many irregular and deceitful symptoms.

Among them may be réckoned the variations of the pulse, the difficulty of respiration, the tremors, agitation, and confusion of mind which often occur, without being followed by Hydrophobia; but which sometimes are precursors of that symptom.

The symptoms also of irritation, and the spasmodic contractions, which seem to indicate an alliance between this disease and Tetanus, may, perhaps, be occasioned by the *puncture* rather than the *venom*; and this

may be that mixture of hysterical and tetanic affections which indeed has been before mentioned, but not accounted for.

In those instances in which the cicatrix of the wound has become ulcerated or inflamed, the same kind of pain before described, takes place: and it is observable, that this sensation is not always confined to the course of the lymphatic vessels, but extends throughout the limb, running even into the bones.

When the pain in, or about the wounded part, does precede Hydrophobia, that symptom usually happens in three or four days.

A great increase of nervous irritability is produced, and violent convulsive agitations arise on attempting to swallow liquids. The eyes are affected with pain by the light, which commonly appears as if much augmented.

It has been said, that the sight of a looking-glass, and other polished surfaces, produces convulsions and tremors, in the same manner as the sight of water, and other liquids *. If this be true; it is a very rare occurrence: no such thing having been observed in those cases which come best recommended to us by accuracy and authenticity.

‡ Boerhaavii Aph. sect. MCXXXVIII.

The eyes almost always assume a peculiarly wild and distressing stare; glancing suddenly from one object to another, particularly when the spasms are coming on. The distress of the countenance at the approach of this disease is indescribable, and can scarcely be even imagined. The sight of water in motion almost always produces sensations of terror. In many instances, when the sight of it, at rest, can be borne with composure;—pouring it out of one vessel into another before the eyes of the patient, is productive of violent agitation and great distress *.

It has been conjectured, that the sight of water brings on convulsions, by inducing a recollection of the difficulty experienced in attempting to swallow: but it is remarkable, that this horror and aversion arise *before* there is any difficulty in swallowing.

If this circumstance had been understood by Salius Diversus, he would not have asserted, that the dislike to attempt to drink was increased by patients finding themselves

* Sauvage's Philosoph. Transact. abridg. vol. v, p. 12.

worse after taking any fluids*. In those instances in which swallowing can be performed, with whatsoever difficulty, it is not observed that any of the symptoms are increased or aggravated by it.

This distinguishes *Hydrophobia* consequent upon the bite of a mad dog, from the same symptom arising from hysterical affections, or inflammation of the stomach. In those cases, there is no horror at the sight of water, but, when swallowed, it is instantly regurgitated: and the same circumstance happens to every thing, solid as well as fluid, which is taken into the stomach.

When the inflammation ceases, these symptoms go off: but it never happens that there is a *temporary suspension* of the disorder, or that a patient regains the retentive power of his stomach so long as the inflammation continues.

Not so in Hydrophobia from the bite of an animal. Here it is not uncommon for the dread of water to cease entirely, and for a person to regain the disposition to drink, not only with freedom, but with eager-

* S. Divers. De Venenis, p. 349.

ness; the convulsions of Rabies being for a time suspended, but not subdued;—and liable to return soon afterwards, with such a degree of violence as to destroy the patient *.

Some have supposed, that the dread of water is wholly imaginary; and that there is no difficulty in swallowing. This is an hypothesis at variance with all clinical experience.

Ambrose Parey knew that it was the appearance of water which excites terror; and not merely the difficulty or irritation of swallowing. On this account, he recommended liquids to be given to the patient in a covered cup †.

Ætius, and other preceding writers, had supposed that persons bitten by mad dogs fancied that on looking at the surface of clear water, a looking-glass, &c. they saw the image of the dog that bit them, instead of the reflection of their own countenance ‡.

Those who maintained this opinion, evi-

* Houlston's Observ. on Canine Madness.

† Amb. Parey, B. xxi, ch. 15. Johnson's translation.

‡ Ætii, lib. vi, c. 24. Baccii De Venenis, p. 76.

dently confused delirium, or a violent state of hypochondriasis, with the symptoms of *Rabies*.

HILDANUS observed, that hydrophobous persons not only refused meat and drink, but were greatly alarmed and terrified at the bare mention of them, or the sight of a cup *.

FORESTUS relates a case of Hydrophobia which was first manifested at the sight of water, over which the bitten person was passing †. The sensibility of the ear is also preternaturally increased; and a confused noise, as of a multitude of people, or the rattling of carriages, is extremely distressing. Sometimes *Hydrophobia* is first announced by the impression received by this organ.

JAMES has related the case of a servant of Lord *Buchan*, who was so much terrified at the sound of water running into a bottle, that he ran away, and thought himself bewitched.

He also mentions a farmer, who was alarmed in as great a degree, by some ale which he was drawing out of a cask:—and he too ran away, and left the barrel abroach.

* Hildani, Cent. i, Observ. 86, p. 62.

† Foresti Op. l. x, Observ. Med. 27. in schol.

Another case has been published, in which the patient shewed evident agitation at the sight of a cup of mint tea, poured out for him to drink *.

I have seen a patient, in whom *the first symptom* of the disease was a degree of horror at the noise and sight of water, which she was drawing out of a reservoir.

This was *Hannah Lacase*, the circumstances of whose disorder have been published. She was bitten in one of her fingers by a mad dog on the first day of December 1807, was, on the 15th of the same month, "seized with a trembling, giddiness of the "head, and terror, at the sight and noise of "water running into a pail; as she was "drawing it from a cistern †." She had no difficulty in swallowing, but was excessively distressed at the sight of water poured out and agitated before her eyes: she looked at it with evident horror, repeatedly desired that it might be taken away; turning from it in great agony:—nor was it until some minutes after the water had been removed

* Medical Commentaries, vol. i, p. 214.

† Moseley on Hydrophobia, p. 19.

from her sight, that she recovered sufficient tranquillity to describe the sensations which had been produced by it.

Of this fact I was myself an eye-witness.

The morbid sensibility of the auditory nerves has been long known: for CŒLIUS AURELIANUS cautioned practitioners in bleeding hydrophobous persons, to prevent the noise or sound of the blood flowing into the basin, from being heard by the patients, lest they should be affected by it:—"ne sonitu per-"culsi commoveantur *."

When *Hydrophobia* has taken place, the nervous irritation which appears to have been necessarily present in order to the production of that symptom, rapidly increases. Every effort to conquer the dread of water augments his agitation, and the spasms. Every attempt to swallow, even a single drop, is instantaneously followed by the most distressing convulsions.

The muscles of the face are often thrown into violent action, so as to produce the *risus sardonicus*, and every imaginable distortion of features.

It is, however, well worthy of attention, that

* Cœl. Aurelian. Acut. Morb. lib. iii, c. 16.

when liquids are not offered to the patient; nor his mind agitated by conversation capable of exciting unpleasant emotions or ideas: he sometimes remains free from spasm, during considerable intervals: but the convulsions invariably return, after every effort to swallow liquids.

Nausea afterwards takes place; there is a sense of weight or oppression at the stomach, and an aversion from food.

These symptoms agree with the effects produced by other infectious matter, at the period when it is about to display its influence in the system. They are usually attributed to the process of absorption, to which also may perhaps be referred the various and opposite sensations of violent heat and extreme cold, of which patients sometimes complain.

It has been erroneously asserted, that this infection produces great debility, similar to the effect of putrid matter absorbed into the system. This opinion was attempted to be propagated, on the transatlantic continent, with great assiduity and earnestness: but no symptom of the disease affords the slightest corroboration of such assertions.

The pulse, which would have afforded an unerring criterion by which the judgment of practitioners might have been directed, gives no support whatever to such an inconsistent theory; and clinical experience disdains it.

Salius Diversus, after mentioning two cases in which he had seen *Hydrophobia* accompanied by fever, expressly stated that he believed canine madness to be totally unconnected with such a state of the system; and that, when they happen together, it is entirely accidental *.

Vaughan describes a pain at the scrobiculus cordis; and says that the sufferer often *points mournfully* to the stomach as the seat of the disorder †.

This author is one of those who deny that there is any real difficulty in swallowing; and suggests, that it is the pain abovementioned which distresses the patient on attempting to drink. This is a mere hypothesis; for the patient is never deprived of speech by the convulsions, unless in the very last stage of the disorder: of course there is no necessity for pointing to any place, in

* Sal. Divers. De Febre pestilent. p. 558.

† Vaughan's Cases.

order to make himself understood with regard to the seat of the disease.

If VAUGHAN had been correct in his statement respecting the pain; how could it be accounted for, that the very moment a drop of water enters the œsophagus, the spasm is produced? Besides, in the vast variety of cases which have been published, this symptom is scarcely ever mentioned. In the more advanced stages of the disease, the tongue becomes rough, the voice hoarse, and sometimes the touch of any liquid is as distressing to the miserable sufferer, as the sight of it, or the attempt to swallow. As often as any attempt is made to get down even the smallest drop of any kind of fluid, the spasm is produced: accompanied by an effort to expel it from the throat, and the œsophagus, and an hoarse noise resembling the stifled barking which dogs sometimes make, when *disturbed in their sleep;* or the short barking of a drover's dog *.

There have been authors who denied this important fact, merely because they had not seen it themselves.

It has been said, that the *hiccough* which

* Moseley on Hydrophobia, p. 13.

sometimes takes place in dying persons has been ignorantly mistaken for barking; and the death of the patient unjustly attributed to the bite of a mad animal. It is scarcely possible to conceive any thing more absurd. On the other hand, it is probable, that many persons die in consequence of having been bitten—without any suspicion of the real cause of their disease: and that some of the unusual symptoms which have been erroneously classed under the heads of apoplexy, epilepsy, &c. may have originated in an infectious bite.

It has been said, that it requires a warm imagination to perceive any resemblance between the barking of a dog, and the noise made by hydrophobous persons in their paroxysms *.

The truth is, the noise is produced in consequence of the convulsive motions excited in the organs of deglutition and respiration; not by attempting to swallow, nor by any effort to throw off mucus, which is usually discharged without difficulty.

The spasmodic contractions of the muscles

* Hamilton's Remarks on Hydrophobia, vol. ii, p. 152.

may sometimes eject it with violence; but this is an involuntary effort; not, as some have supposed, the consequence of the viscidity of the matter; still less does it depend on any diseased condition of the stomach *.

Rhazes mentions Hydrophobia, and says that a certain man barked by night like a dog, and died: and that there was one who when he beheld water was seized with trembling, horripilatio, and rigor: but when the water was removed from him, these symptoms ceased †.

Avicenna asserted, that hydrophobous persons barked like dogs: that they had a desire of biting people, and that there were instances of patients being strangled by attempting to drink ‡.

There is no doubt, that, in the dark ages of physic, it was imagined that the noise before described was a specific symptom: and that it indicated the assumption of the character of the animal by which the original infection of the disease was communicated. Many absurdities, scarcely less glaring, are

* Hamilton's Remarks on Hydrophobia, vol. ii, p. 22.

† Rhazes, lib. xx, contin. c. 2.

‡ Avicen. lib. v, tom. vi, Tr. 4, c. 7.

still believed by the ignorant and credulous; and they are not contradicted by practitioners.

Some authors have asserted, that hydrophobous persons are so irritable, that they are offended by the least touch or motion, and suffer great distress, even from the access of cold air *.

It is also said, that they desire to be kept perfectly quiet, and in darkness.

I have before mentioned, that great irritability takes place, but is seldom attended by such circumstances as these last mentioned: the eyes are, however, usually much affected by a glare of light.

The state of the bowels is commonly regular: sometimes constipated, and usually so after the spasms have come on: but this symptom has never been observed in so great a degree as to afford any pretext for considering it an incitement to the disorder.

Thirst is not so generally complained of, as the perusal of HEISTER's observations, and

* Cœl. Aurelian. lib. iii, c. 2. M. de la Pryme's account of the bite of a mad dog in Motte's Abridgment of Philosophical Transact. Part ii, c. 8. Vaughan's Cases.

those of some other writers, might induce persons to believe: especially in the early stages of the disease.

VAUGHAN had the temerity to assert, that he could distinguish an hydrophobous person, by the mixture of fierceness and timidity in his countenance; and he describes the voice to be peculiarly plaintive and mournful.

This is certainly incorrect; as much so as the strange notions which have been propagated respecting spasm *in certain muscles*, not at all connected with the seat of the disease *.

The next stage of the disorder, which has been denominated *discataposis* (difficulty of swallowing) presents symptoms considerably more aggravated than those which had previously taken place.

The convulsions which had been confined to the muscles subservient to deglutition and

* Galen. De comp. med. secund. locos lib. ix, c. 9, Chart. tom. xiii, p. 624. Cœlii Aurelian. Acutor. Morb. lib. iii, c. xi. Hernandes Rerum Mexican. med. Thesaur. p. 493. Lommii, Observat. Medicinal. lib. ii, p. 63. Amstelodami ed. Boerhaavii Aph. MCXXXVIII. Bonet. Sepulchret. Anat. tom i, p. 216. Philosophical Transactions abridged by Motte, Part ii, c. 8.

respiration, then become more violent and more general; the pulse quicker and weaker. Large quantities of frothy saliva issue from the mouth: the breathing is difficult, irregular, and laborious. At length the unfortunate patient, exhausted by the severity of his sufferings, falls into a cold sweat, and gradually, and often quietly, sinks into dissolution.

The following case, delineated by Professor PLUMMER of *Edinburgh*, bears every mark of correctness and authenticity:

A young gentleman, seventeen years of age, was bitten by a dog in the middle finger of the right hand, about the middle of the nail. The wound gave very little trouble at first, and was soon cured. This was in the beginning of *January*.

A month afterwards, he first complained of pain in that finger, running along the back of the hand to the elbow, accompanied with a numbness of the finger. In the subsequent night he was very hot and restless, the pain increasing. The next day he fomented his hand for some time; but at night the sharpness of the pain made him restless, and put him in great heat and perspiration. Being

very thirsty, he arose in the middle of the night to get some water to quench his thirst: but on attempting to drink it, could not drink so much as he desired, because of a difficulty of swallowing. In the morning he again attempted to drink, but the liquor had scarcely reached his throat when he was suddenly convulsed, let fall the cup, and said he was almost choked.

Some hours after, when he was getting out of bed, he complained of giddiness of his head and sickness at his stomach: he was hot and feverish, and his hand very painful. Ten ounces of blood were taken from his arm; and the pain of the finger abated.

He made some attempts to swallow a cathartic medicine in a liquid form, but could not. He also attempted to swallow a little soft bread soaked in wine-whey; but after rolling it about in his mouth for some time, he spat it out suddenly, with a convulsive motion. However, he slept calmly that night, and had a moderate sweat.

The next morning he appeared disordered, spoke incoherently, fetched deep sighs, complained of difficulty of breathing, and that the motion of his heart was interrupted.

About eleven o'clock, he was very uneasy, tossing his head, and shifting postures: his mouth was frequently distorted, and the muscles of his face convulsed; his breathing quick, his pulse frequent, but weak. He attempted to swallow, but could not. He now became much worse, appeared to be in great agony, tossing his head and arms about: his face was red and bloated, his eyes wild and staring: he squirted out his spittle, suddenly started up from his seat, then threw himself on the bed; yet still answered questions composedly.

On a sudden, he leaped from the bed, quite furious, and fell upon a young man who was in the room, in an outrageous manner. Being carried back to his bed, two men could scarcely hold him; and the vein, which had been opened the preceding day, being burst open by the violence of his struggling, bled excessively.

He roared and foamed, gnashed with his teeth, endeavoured to tear and bite every thing he could come at. Even now he spoke rationally, and suffered his arm to be bound up, and the blood and sweat to be wiped off his face. This fit lasted near an hour, and he lost in it, about twenty ounces of blood.

When he became calm again, he complained of great thirst, and attempted to drink some milk and water; but on taking a mouthful, he squirted it out again, and was instantly seized with a violent convulsion, which was followed by a vomiting of phlegm, bile, and some thick black matter, like grumous blood.

Then the furious paroxysm returned. He raved, struggled, and attempted to bite. In the evening, he foamed at the mouth, made a hideous screaming noise, rolling about his tongue. He had also a convulsive motion, like a strong hiccough, and his face was frequently distorted with spasms. He raved incessantly, but seemed to know the medical gentleman who attended him. He continued in this condition until six o'clock in the evening, when, his strength being quite exhausted, he lay motionless for half an hour, and then expired *.

This very interesting case can scarcely be paralleled, for perspicuity and accuracy, unless by that with which the public has been favoured by Doctor Moseley, in the account published last year of the fatal conse-

* Edinburgh Medical Essays, Vol. v, Art. 51.

quence of the bite of a Mad Dog, in the person of *F. M.* of *Compton Street, Soho*, who was bitten in the right hand as he was humanely interfering to separate two dogs that were fighting, with so much violence, that one of them had torn out an eye of the other. * Mr. M. seized hold of one of the dogs, and two of the animal's teeth penetrated the outside of his right hand, and wounded the palm of the hand considerably. This happened in the beginning of *July* 1807.

The wound was dressed with Friar's Balsam, and poulticed; and was cured in a week, or ten days.

On Sunday, the ninth of November following, he was attacked early in the morning with a difficulty in swallowing any liquid. He said, that he had attempted to drink some porter, but as soon as he put the pot to his mouth *something rose in his throat, and choked him. He swallowed, as he thought, about a tea-spoonful; and then was seized with a trembling, and cramp in his arms and legs, and a sensation of pricking, as if pins or needles were run into his flesh.*

His appetite had failed the preceding

* See page 22.

Saturday. On Sunday, he ate a small piece of mutton; which made him sick at his stomach. He was attacked on Thursday with a violent pain in his right arm, from his shoulder to the ends of his fingers. This pain left him on Saturday night. He rubbed the arm with hartshorn and oil, and wrapped it up with flannel, on Saturday.

His mother said, that on *his seeing any liquid poured out for him to drink, even before he took hold of the cup, he began to tremble, and the choking seized him: and in attempting to drink, that he became convulsed, his eyes looked glassy, and he stared in an unusual and frightful manner.*

There was a small degree of redness remaining; but no heat or pain where the wound had been in the palm of the hand, and no vestige whatever on the outside where the teeth had been. There was nothing observable in his throat, differing from its natural state; nor any increase of saliva. Pulse eighty-eight, rather feeble, and not quite regular. He had no thirst.

He said, his choking seemed as if arising from wind: and he always discharged a great deal from his throat whenever he at-

tempted to swallow. He took some dill-seed water, and thought it relieved him: but never could get down more than a tea-spoonful at a time, and that with great difficulty. In one attempt to swallow some of this water, he was so choked and convulsed, that he would have fallen into the fire, if his mother had not saved him.

Water was given to him twice; each time he swallowed about a tea-spoonful, and both times was choked, and convulsed, with a wild staring in his eyes, and a trembling all over him: and immediately after the effort of swallowing, he made a hideous noise like the stifled barking of dogs when disturbed in their sleep. The second time the water was given to him, it produced nearly a fatal convulsion.

This patient fell into a tremor, and was in great distress when he took the pot into his hand to drink, and having drunk, was in such an agony that he could not hold it.

He bore the sight of the water when it was not offered to him: but when a large basin, filled with water, was placed before his eyes, he seemed frightened; and when it was agitated near him, he was instantly attacked

with what he called "the wind rising in *his throat," trembling, and the hoarse noise before mentioned.*

He said, that he was certain the attempt to take any medicine in a liquid form would kill him: but that he could swallow solid substances.

At eight o'clock in the evening, his pulse was a hundred and ten, and very feeble. In attempting to drink water, the usual consequences happened; choking, wildness in the eyes, and the noise in the throat.

About ten o'clock, he became so violently convulsed, that four men could scarcely keep him in bed: *but he made no attempt to bite any person. He began also to foam at the mouth with white froth. The quantity of this froth was so great, as to require many towels and handkerchiefs in wiping it from his mouth. He was delirious at intervals. He complained, though in a very warm room, of being cold, and begged to be kept warm.*

In this condition he continued until one o'clock on the following morning, when from the violent convulsive exertions and struggling, he was entirely exhausted, and remained calm and quiet until a quarter before

two, when he expired :—eighteen weeks from the time of the accident, and forty-six hours from the commencement of hydrophobia *.

The preceding case embraces most of the symptoms which usually take place in this disease. I have selected it, because it is recent, was recorded at the time of its occurrence, and is accurately described.

Amongst the varieties observable in this singular disease, is the circumstance, that although *Hydrophobia*, strictly so called, sometimes precedes the convulsive distortions and *discataposis*, or strangulating contractions of the larynx and pharynx, before described; it sometimes does not take place until after they have happened: that, in other instances, the dread of liquids is succeeded by death, without any convulsions whatsoever; and in a few cases it even ceases altogether; so that the patient can drink freely before he dies †.

Such cases might be adduced in support of the opinion which I have before advanced, that the Tetanic symptoms are distinct from those dependent on the absorption of the venom: and they lead to a conclusion, that

* Moseley on Hydrophobia, p. 15.

† Gentleman's Magazine for January 1785.

attempts to remove the spasmodic affection alone, or to subdue the influences of the poison when accompanied by the tetanic symptoms, without a due regard to those also, will be alike ineffectual.

The same defect is as remarkable in the account of Rabies among human beings, as among the canine race,—a want of elucidation by dissections.

There have been, perhaps, more numerous dissections performed, and the appearances have been recorded; but they are contradictory, vague, and futile.

Dryness of the pericardium *; and of the viscera in general, both of the thorax and abdomen; and less humidity in the brain may naturally be accounted for, by long abstinence from liquids, and the violent agitations of the patient.

But even respecting these appearances, there are direct contradictions.

Capivaccius found the cavities of the heart dry; and destitute of blood.

Lieutaud mentions redness of the trachea and œsophagus, and the blood fluid in the vessels.

Rolfinkius could not discern any appear-

* Hildan. Cent. i, Obs. 86.

ances of inflammation about the fauces; but remarked the dryness of the viscera, as BONETUS had also done.

MORGAGNI, describing a dissection by his friend *Mediavia*, speaks of the gall-bladder filled with very black bile, the lungs black, and very fœtid; air-bubbles under the dura mater; and all the vessels of the brain distended with blood. But, although the patient was called hydrophobous, he is recorded to have borne submersion, and to have drunk water when in the bath *.

More modern dissections have not improved our knowledge of the disease.

How, indeed, can it be expected? In the greater number of cases, the appearances, after death, have been governed by the various medicaments employed for the relief of the patient. In some of them, as in the case mentioned by MORGAGNI, the appearances undoubtedly depended on some other disease.

Few persons, to whom is committed the examination of bodies, after death, have ever seen the dissection of a perfectly healthy sub-

* Morgagni De Causis et Sed. Morb. lib. i, Ep. viii, 23.

ject: few have had sufficient experience to distinguish between the different causes by which similar effects may be produced.

The body of a person, dead from Rabies, is examined with a sort of bias towards considering the disease as the cause of all the appearances by which that body is distinguished from others: sometimes without any knowledge of the medicines which had been exhibited; still more frequently without any previous information respecting the constitution and habits of the patient; and almost always without any consistent ideas of the influences and effects of these several circumstances, and their various combinations, in producing what are often improperly denominated *morbid* appearances.

A judicious and experienced physician will have no difficulty in accounting for inflammatory streaks or spots in the stomach of a patient, who, during the disease under consideration, swallowed large quantities of *nitrate of silver*, or *arsenical solution:* but it may be almost impossible for the most enlightened practitioners to determine in how great a degree such appearances, or peculiar dryness of the pericardium, or of the mem-

branes of the brain, may have been influenced by spasmodic contraction of the muscles, partially or generally.

Wherefore, at the same time that we lament the want of a more correct history of dissections; and admonish our contemporaries and successors of the utility of diligent research, let us ever bear in mind that it is far better to attempt nothing on this subject, than to execute any thing imperfectly. For nothing has so much contributed to mischief, and, consequently, disgrace, in the practice of physic, as the inconsiderate adoption of hypothesis in place of fact; and substituting the glittering visions of Theory for the substantial benefits and unfading light of Truth.

CHAP. V.

THE TREATMENT, RECOMMENDED BY PRECEDING AUTHORS.

THE Ancients seldom made a proper distinction between persons who had been merely bitten by an enraged animal, and those who exhibited symptoms of constitutional affection after such bites.

In appreciating the value and effects of different medicines and applications, the reader therefore will bear in mind this important circumstance, which, of itself, affords almost sufficient ground for condemning, indiscriminately, the whole farrago of their medicaments.

But still it is useful to examine what has been already done, both for the prevention and cure of the disease: because, without knowing the doctrines and discoveries of our predecessors, it is impossible to distinguish between alteration and improvement; or to separate originality from plagiarism.

It would be superfluous to extract from *all*

the numerous authors who have written on this subject, the minutiæ of their instructions respecting the treatment of the disease. A concise and popular view of the principles, rather than the particulars which are to be found in the works of the leading practitioners, will be of more use to inform the judgment of the reader, and enable him to trace, *gradatim*, the inventions of successive ages.

He will lament that so little has been effected during the long period in which medicine has been cultivated: and will be astonished, that neither the accumulated experience of a multitude of facts, nor the advantages of modern improvements in the sister sciences, have yet elucidated this important branch of study; so as to afford to practitioners any certain rules for their conduct, or to patients any well-founded hope of cure.

Dioscorides recommends two spoonfuls of the ashes of burnt river crabs, with one spoonful of Gentian root powdered, to be taken in wine, for three days; beginning immediately after the person has been bitten. But if the wound had been made two or three days before,—the quantity of the ingredients should be double or treble, for a dose.

In his Book *de Theriacâ*, he says it should be given for four days.

He advised the bitten parts to be extirpated, and the wound to be circumscribed with a knife. The parts above the wound to be scarified; to drain them, and prevent the virus passing into the system.

He ordered cupping to be used, with a considerable degree of flame; but, in desperate cases burning, as the most expeditious remedy; believing fire, before all other things, to be most efficacious in destroying the virus, and preventing its penetrating.

Salted meat, beaten up with garlic, onions, &c. to be applied to the wound. A poultice of wheat-meal to be used, to asswage the swelling.

If the wound should have been closed before the fortieth day; it was to be opened, and the cicatrix removed with a knife; or the part cauterized again.

When, at length, the wound was healed, a plaster of salt was to be applied around the parts; and afterwards sinapisms.

He advises, internally, pure wine, milk, garlic, leeks and onions, antidotes, theriaca, mithridate, aromatics, &c.—But, he says,

that hellebore is by far the most efficacious of all remedies; and that it is useful, not only before the fortieth day, but afterwards: nay, that some, who have been hydrophobous, and who took the hellebore in the early stage of the disease, have been preserved.

He mentions, that THEMISON had the disease; and recovered *.

He says, that alysson bruised, and eaten with food, is useful for the bite †.

SCRIBONIUS says, that his preceptor APULEIUS CELSUS prepared an antidote every year, which he sent into Sicily, where canine madness is very common. This antidote was a *theriaca*, composed of nard, saffron, myrrh, pepper, cinnamon, opium, &c. It was to be given, for thirty days, to prevent *hydrophobia*, which, he observes, brings on death with great agony; and of which no person was ever known to be cured.

He mentions an amulet used in *Crete*, by ZOPYRUS, even when there was *hydrophobia*, barking like a dog, and convulsions.—

* Dioscorid. lib. ii, c. 12.

† Alyssum, Madwort, a species of horehound, sometimes also called Motherwort.

A piece of an hyæna's skin, bound on the left arm of the person bitten *.

Ovid believed hydrophobia to be incurable: and medicine in such cases useless.

"Tollere nodosam nescit medicina podagram,
"Nec *formidatis auxiliatur aquis* †."

Celsus recommended cupping, to draw out the virus; and afterwards a hot iron to be applied, if the wound were in a part where it could be done with safety. The wound to be dressed with emollients after the cautery. When the actual cautery could not be conveniently applied; corrosive medicines were to be used; and then the wound to be healed.

He relates, that some used the warm bath, in which the patient was to sweat as long as his strength would permit: the wound being kept open, for the virus to be discharged. The patient was to drink largely of wine.

He says, when Hydrophobia appears, there is only one remedy. The patient is to be suddenly thrown into a pond, and, if he can not swim, he is to struggle in the water, and

* Scribonii De Comp. Med. lib. c. 45.

† Ovidii Ep. ex Ponto, lib. i, el. 3.

be suffered to sink; being occasionally raised, so that he may be *compelled* to drink. If he can swim, he is to be forced under the water, occasionally, that he may be made to drink, and thereby be freed from the thirst and dread of water at the same time.

But, he adds, weak people are in danger of convulsions from this sudden submersion; and therefore, directly after it, they should be put into a bath of warm oil *.

Pliny says, that the bite of a mad dog, until about his time, was considered incurable; and that those who were bitten, were seized with Hydrophobia, or a fear and dread of water.

He relates an account of a Roman soldier, who, while he was serving in Portugal, was bitten by a mad dog: and that his mother had a warning in her sleep to send him the root of the Cynorrhodon, or Dog-rose, to take, which shrub she had seen, the preceding day, in a garden, and was delighted with its appearance †.

* Cels. lib. v, c. 27.

† The Rosa Canina germinibus pedunculisque glabris caule petiolisque aculeatis, of Linnæus. Class, Icosandria, Ord. Polygynia.

The man was already, in consequence of the bite, beginning to have a dread of water, when the letter from his mother arrived, exhorting him to use the remedy, which he accordingly did, and was cured.

Many other persons used the same, and with equal success *.

He says, there is under the tongue of a mad dog a slimy or muddy saliva, which, being given to those who are bitten, will prevent Hydrophobia. And that *the worm* in the tongue, called *lytta*, (often extracted from young whelps) should be carried three times about the fire, and given to those who have been bitten by a mad dog, and it will prevent the rabies †.

He also mentions a great variety of remedies of different kinds: such as sheeps' wool, to be kept on the wounded part, seven days. The ashes of a dog's head burnt to be applied. The liver of the mad dog which bit the patient to be eaten raw, if possible; otherwise, boiled a little. Broth, made of the dog's flesh. He says, some have recommended the *dog's head* to be eaten. Goose-

* Plinii, Nat. Hist. lib. xxv, c. 2.

† Plinii, Nat. Hist. lib. xxix, c. 5.

grease and honey to be applied. Garum, or fish-brine, to be applied *. Nitre and fuller's earth mixed with resin and vinegar, to be applied. Garlic to be applied †. Squills to be applied with honey. Rue: the juice to be taken with wine, and the leaves, mixed with salt or honey, to be applied ‡.

Horehound, mixed with hogs' lard, to be applied: this he cites from CASTOR §. Fleur de lis, mixed with oil, to be applied ‖. The juice of balm to be taken. The tender tops and twigs of the fig-tree, or the leaves, pounded with vinegar, to be applied. The juice of the wild fig-tree. Bitter almonds, mixed with honey, to be applied. Walnuts to be eaten in a morning fasting; and to be applied, &c. He relates, that POMPEY found among the treasures of the great King MITHRIDATES, the recipe for a certain antidote against poison; namely, two dried

* Plinii, Nat. Hist. lib. xxxi, c. 9. Garum is also mentioned by HORACE as an article of Roman luxury: —it seems to have been the pickle in which Spanish Mackarel were preserved, "garo de succis piscis Iberi." Sat. viii, v. 46.

† Plinii, Nat. Hist. lib. xx, c. 6. ‡ Ib. c. 13.

§ Ib. c. 22. ‖ Ib. lib. xxi, c. 20.

walnut-kernels, two figs, and twenty leaves of rue, to be beaten together, with a grain of salt. To be eaten in the morning fasting, as a preservative for one day.

The herb Alysson to be taken with vinegar *. Hair of a man's head applied with vinegar †. The flesh or liver of a hyæna to be eaten ‡. Calves' feet to be applied (the wound being first cut round) and veal broth to be taken. *Hogs lard with quick lime to be applied.* Liver of a buck-goat to be applied §. Salted fish to be applied.

He cites EPICHARMUS as recommending a species of colewort, termed peeran, of which a cataplasm was to be made, and applied to the sore: but that it would be more effectual if laser and strong sharp vinegar were added to it ‖.

PLINY also mentions cauterising the wound with an hot iron. He says, an actual cautery of red hot iron, even *after* hydrophobia, gives immediate relief ¶.

* Plinii, Nat. Hist. lib. xxiv, c. 11.
† Ib. lib. xxviii, c. 4.
‡ Ib. c. 6.
§ Ib. c. 10.
‖ Ib. lib. xx, c. 9.
¶ Ib. c. 15.

He relates, from THRASILLUS, that the ashes of cray fish, mixed with the herb gentian, and wine, were much esteemed as a remedy for persons bitten by mad dogs, to prevent hydrophobia: but that, if the dread of water had taken place, the ashes were directed to be formed with wine into troches, or pills, and so to be swallowed †.

THRASILLUS expressly said, that sea crabs were not by any means so efficacious as the river cray fish.

PAUSANIAS, in his account of ancient *Greece*, mentions a fountain of very cold water, which, being drunk, *instantly cured* persons bitten by a mad dog ‡.

GALEN celebrates the wonderful efficacy of the powder of burnt river crabs, even when given alone; but more especially when conjoined with gentian and frankincense. He adds, that there should be five parts of gentian and ten of the ashes, to one part of frankincense.

This seems to have been the principal re-

* Plinii, Nat. Hist. lib. xxxxii, c. 5.

† Pausaniæ Arcadic. sive, lib. viii, p. 637. Ed. Kuhnii, Lipsiæ, 1696.

medy in his time; and he says it was recommended by ÆSCHRION, a most skilful physician, and his own preceptor.

He describes the method of preparing the crabs. That they were to be burnt alive on a copper plate, and then finely powdered.

He says, that ÆSCHRION always performed this process in the summer, *after the rising of the Dog-star, when the Sun had entered Leo, and the Moon was eighteen days old.*

The powder was to be moistened with water, and taken in the quantity of a large spoonful daily for forty days: but if the medicine had not been given soon after the bite was inflicted, the dose was to be increased to double the quantity.

He ordered the wound to be dressed with Italian pitch and opopanax, dissolved with vinegar in the proportion of one pound of the pitch to a pint and an half of vinegar, and three ounces of opopanax *.

He also says, that the herb *Alysson* marvelously helps those who have been bitten by

* De Simpl. Medic. Facult. lib. xi, c. 24, tom. xiii, p. 310, Chart.

a mad dog: and is of itself sufficient to cure them completely *.

In another place, he directs cabbage leaves, beaten with benzoin and vinegar, to be applied to the part bitten; and says that, even alone, they are efficacious †.

He afterwards mentions the antidote which MITHRIDATES is said to have received from ZOPYRUS, the *Cretan;* and several other preparations:—such as a composition of burnt crabs, myrrh, saffron, gentian, white pepper, and wine; recommended by CRATIPPUS: scordium, pepper, opium, benzoin, powder of burnt crabs, gentian, rue, red *Lemnian* earth, myrrh, opobalsamum, all recorded by HIRAS: the respective antidotes of BELCHIONIUS, ZENO LAODICÆI, CLAUDIUS APOLLONIUS, MENIPPUS, and MENELAUS; all of a similar nature ‡.

ORIBASIUS, after describing madness in dogs, directs that the wound should not be healed hastily:—that it should be fomented with a decoction of chamomel, and wild

* De Simpl. Medic. Facult. lib. vi, c. 24.

† De Remediis, Parab. lib. iii, tom x, p. 665.

‡ De Antidotis, lib. ii, c. xi, tom. xiii, p. 917, 918.

dock-root: the juice of box-thorn, and Asa-fœtida to be taken, and also applied to the bite: a decoction of germander, scordium, gentian root, polium, and river crabs, to which much of the herb dill is to be added. The patient to be purged with colocynth: and the bowels kept open by small doses of it, taken every day.

He says, that a decoction of *Alysson*, alone, is of great service. He also recommends medicines prepared of vipers, and the liver of the dog which bit the patient: but he did not rely on any single remedy.

He quotes Apollonius of *Pergamos*, who said, that persons, having hydrophobia from other causes, are sometimes cured: but that the dread of water, occasioned by the bite of a mad dog, no man ever cured *.

He repeats his advice respecting the ashes of river crabs, gentian, frankincense, &c. to be given every day for forty days †.

Ætius advises enlarging the wound with a knife immediately, and scarifying the contiguous parts. The wound is then to be burnt with the actual cautery, and dressed

* Oribasii Synops. lib. viii, c. 13.

† Ibid. De Morb. Curat. lib. iii, c. 72.

with an application of leeks, onions, or garlic, or bread mixed with salt.

The wound is to be kept open forty or sixty days. If it should have been healed sooner, he says that it should be opened again, with corrosive applications, such as *ashes of the vine* or fig-tree: the leaves of horehound being applied over the caustics.

He enumerates various internal remedies, but, above all, *the ashes of great river crabs burnt alive;* and gentian root. These were to be used during forty days.

He remarks, that some authors recommend the dog's liver boiled, to be eaten: also the liver of a cormorant, or of a sea-horse roasted, &c. and he notices the wonderful effects of the skin of the hyæna externally; and the ashes of it taken internally, &c. *

Paul Ægineta describes the appearances of a mad dog correctly: and says, that nobody ever was cured of *hydrophobia* from the bite of a mad dog; but that many have had that symptom prevented.

His remedies are the same as those of all the followers of Galen:—Alysson, powder

* Ætii Titr. ii, Serm. 2, c. 24 ex *Rufo* et *Posidonio.*

of burnt crabs, gentian, &c. to be continued for forty days, with cataplasms of salt, onions, rue, &c. and of salt, and juice of asafœtida. The doses of the medicines to be proportionably larger, if they have not been used from the beginning of the disease.

He directs the liver of the dog to be eaten. Old sweet wine and milk to be drunk:— garlic, onions, and leeks to be eaten *.

Avicenna directed the wound to be dilated, and *kept open forty days.* Cupping to be performed. Plasters of pitch, opopanax, and vinegar, and corrosive applications, the actual cautery, salt, mustard mixed with urine and nitre.

His internal remedies were the same as those used by the Roman physicians, such as coagulum of a hare, *Alexandrian* and *Lemnian* earths, gentian, bay-berries, myrrh, birthwort, amomum, rue, wormwood, Terra Sigillata in wine: the liver of the mad dog: cantharides, pepper, cloves, cinnamon, powder of burnt river crabs. Also plasters of asafœtida, and the liver of the dog †.

* Paul. Æginet. lib. v, c. 3.

† Avicen. lib. iv, Fen. vi, Tr. 4, c. 7.

He mentions giving drinks by means of a tube put down the throat.

VARIGNAN recapitulates the Galenical practice. Horehound mixed with salt to be applied to the wound. Opopanax and pitch:—fennel root. Hair of a man's head, and vinegar: Terra sigillata, with wine, to be taken, and also applied to the wound, mixed with very sharp vinegar.

But, above all, he recommends gentian, mixed with an equal quantity of myrrh; and a double proportion of the powder of burnt river crabs, which, he says, should be given in the beginning of the disease, before the dread of water comes on *.

FERNELIUS advised draining the wound by scarifications, cupping, and digestives: and to prevent the virus spreading, the wound to be circumscribed with caustic applications: —the actual cautery to be used, and the edges of the sore to be cut away.

He records the old antidotes of the ashes of river crabs, gentian root, and mad-wort; but says that evacuations should be rarely used †.

* Varignanæ, Tract. iii, Serm. 4.

† Fernel. De Morb. Contagios. lib. ii, c. 14.

FABRICIUS AB AQUAPENDENTE applied the actual cautery to all wounds inflicted by venomous creatures, or poisoned weapons *.

MATTHIOLUS recapitulated the remedies directed by DIOSCORIDES, GALEN, ÆTIUS, &c.: discoursed largely respecting the use of *Lemnian* earth, and mentioned the application of the cautery to the wounded part. He likewise says, that the priests were wont to cure the disease with consecrated bread †.

VAN HELMONT followed CELSUS in recommending the cold bath. He relates the following curious narrative. "There is a castle," says he, "situated by the sea-side, four leagues distant from *Ghent*, which they call *Cataracta*. I saw a ship passing by it, and therein an old man, naked, bound with cords, having a weight on his feet: under his arm-pits he was encompassed with a girdle, wherewith he was bound to the sail-yard. I asked what they meant by that spectacle? One of the mariners said, that the old man was an Hydrophobid, or had the disease causing the fear of water, and

* In Operat. Chirurg. p. 331.

† I. Discorsi Dim. Pietro And. Matthioli, cap, xxxvi, vii, viii, ix. Ed. Venet. p. 777, &c.

had lately been bitten by a mad dog. I asked, toward what part of the sea they wished to carry him? Did they intend his death? Nay, rather said the mariner, he shall presently return whole; and such is the blessing of the sea, that such a kind of madness it will presently cure.

"I offered them some money to take me along with them, as a companion and witness. When we had sailed about an *Italian* mile, the mariners did open an hole in the bottom, whereby the whole ship was almost sunk, even to the brim: indeed they used the brine to recoct *Spanish* Salt; and when as that hole was now again exactly shut, two men withdrawing the end of the sail-yard, lifted up the top thereof, and bore the old man on high: but thence they let him down headlong into the sea: and he was under the water about the space of *a miserere*, whom afterwards they twice more plunged, about the space of an *angelical salutation.*

"But they then placed him on a smooth vessel, with his back upwards, covered with a short cloak. I did think that he was dead; but the mariners derided my fear, for his

bonds being loosened, he began to cast up all the brine which he had *breathed in*, and presently he revived.

"He was a cooper of *Ghent*, who being thenceforth freed from his madness, lived safe and sound.

"Also the mariners did relate that the *Dutch* by a raw herring salted, applied to the bite of a mad dog for three days space and renewed, do take away all fear of madness. When this has been neglected; at least by the beheld manner of plunging, they are all cured" *.

Ambrose Parey recommended garlic internally, and the actual cautery to be applied to the part. Like other authors he renumerates the remedies of his predecessors, but observes from *his own experience*, that treacle dissolved in *aqua vitæ* or strong wine, and rubbed hard upon the bitten part so as to occasion it to bleed; laying upon the wound clothes dipped in the same; and presently afterwards garlic or onions beaten with *salt* and turpentine, was a remedy far superior to all others.

"By this only remedy," he declares that

* Helmontii, ad Not. Oper. Phys. p. 62.

he cured a young lady of the symptoms of madness, and healed the wound, when a mad dog had bitten her grievously in the calf of the right leg *.

He says that sea-bathing is not to be depended on: *it being productive of fright and fear, which must necessarily occasion mischief.*

He recommends the wound to be kept open, till the fortieth day: leeches to be applied: cupping, scarifications, applications of fowls, meat, &c. to the bitten part, to absorb or draw out the venom Garlic and shalots boiled, with butter and salt: Euphorbium.

He mixed Theriaca (on which he also placed considerable dependence as an internal medicine) with digestives, for dressing the wound †.

HILDANUS describes his own practice, as follows:

He, first, scarified the bitten part with a knife: then used cupping, with a considerable degree of flame; and afterwards bathed the whole of the limb which had been bitten,

* Amb. Paræi Op. lib. xxi, c. 20. Lyons Ed.

† Ibid.

with vinegar (in which some treacle had been dissolved) mixed with a small quantity of spirit of salt.

He applied the actual cautery deeply and effectually, and, with great propriety and judgment, admonishes young surgeons to be very attentive in this particular, lest any infectious matter should remain in the wound. A violent disease, he adds, according to the old proverb, requires a violent remedy *.

He proceeds, that instead of being solicitous about healing the wound, he endeavoured to promote a free discharge, by dressing it with lint moistened with aqua vitæ in which Theriaca had been dissolved.

He kept a pea in the wound to prevent its growing up: and stimulated it with a powder composed of precipitate, bezoar stone, and angelica root, in equal proportions. He extols this powder as wonderfully effectual in attracting and subduing the venom.

Internally, he gave alexipharmics, such as mithridate, treacle, burnt hartshorn, and bezoar stone. He also records GALEN's powder of burnt river crabs, gentian, and olibanum.

* Quint. Curtii, lib. v, c. 9.

He remarks, that he neither opened a vein, nor exhibited cathartic medicines, lest the peccant matter should be transferred to the internal from the external parts *.

In another part of his writings he mentions a stimulant often used in this disease, called *Potio Lüchtenbergiana.*

PALMARIUS received from *Sylvanus Count de Pyrou* the famous recipe for a powder, which, during his life, and for many years afterwards, was held in great estimation; and has since been made the basis of many compositions which, from time to time, have obtained great celebrity.

The composition, called the powder of PALMARIUS, was composed of equal quantities of the leaves of rue, vervain, sage, plantain, polypody of the oak, wormwood, mint, mugwort, balm, betony, St. John's wort, and less centaury, which, being mixed, were to be exhibited, daily, in the dose of a drachm, or a drachm and half †.

PARKINSON, in his immense collection of remedies, has enumerated gentian, snake-

* Hildan. Observ. Chirurg. Cent. i, Observ. 87. Ed. Genevæ. Ibid. Cent. iv, Observ. 88, p. 365.

† Palmarii de Morb. Contagios. p. 276.

root, nettle-seed, the juice of plantain mixed with oil of roses; pimpernell boiled in wine, onions mixed with rue and common honey, the root of the Carline thistle *, the extract, or inspissated juice of box, as internal remedies †; burdock root bruised, and mixed with salt; and a *lixivium of the ashes of the vine*, mixed with oil, as external applications ‡.

He recommended, on the authority of a friend, who had used the composition with success, the leaves and roots of cowslips, the leaves of box and penny-royal, of each an equal quantity, cut small, and taken three days together in hot broth. The same herbs to be applied to the bitten part, with soap and hog's lard §.

BOERHAAVE recommended bleeding copiously, cupping, and the actual cautery: he also ordered clysters of warm water, vinegar, and nitre or salt: and copied from CELSUS the injunctions which he delivered respecting

* Parkinson's Theat. Botanic. Tribe viii, ch. 6,

† Ib. Tribe xvi, ch. 28.

‡ Ib. ch. civ.

§ Ib. ch. xxviii.

violent and repeated submersion in cold water: and his directions, that the patient should be forced to drink a considerable quantity of the water:—directions, which experience would have convinced him (what reason, without experience, might have taught) were totally impracticable *.

He says, that an old *Batavian* physician recommended salted herrings to be laid on the wound for twenty-four hours, and, if they became fœtid, to be renewed: by which means hydrophobic persons were cured; and, certainly, those who, although bitten, had not yet experienced the dread of water.

He adds, with regard to the herrings, that he did not know how they produced this effect: but that they were believed to possess a sort of *specific* virtue †.

However, this distinguished author himself candidly confessed, that the remedies employed as preventives of rabies were all uncertain; and that no confidence could be placed in any of them, after the dread of water

* Boerhaavii Aphorism. MCXLIII, et sequent.

† Ibid. vol. vii, p. 394.

had arisen; neither ÆSCHRION'S *secret of burnt crabs recorded by* GALEN *and* ORIBASIUS; *nor the renowned Sicilian remedy of* SCRIBONIUS LARGUS; *nor the skin of the hyæna, nor the ashes of crabs with treacle, of* ÆTIUS, RUFUS, *and* POSIDONIUS, *nor the composition of* PALMARIUS, *nor tin and mithridate, nor the root of the dog-rose revealed in holy visions, nor even liverwort itself, extolled to the skies, being excepted* *.

BOCCONE says, that in *Hungary*, cantharides are given to persons bitten; in the proportion of five to a man; and to beasts a greater number †.

DESAULT recommended an ointment composed of equal parts of quicksilver, cinnabar, human fat, and hog's lard ‡.

MEAD proposed bleeding in large quantities, even *ad deliquium:* as preparative to the exhibition of a favourite powder, which he deemed an infallible specific.

This powder, known by the title of *Pulvis Antilyssus*, was made of two parts of *English* ash-coloured ground liver-wort, mixed

* Boerhaavii Aph. MCXXXIX.

† Mus. di Fisica Observ.

‡ Desault Sur la Rage.

with one part of black pepper. It was directed to be taken in doses of a drachm and half, in half a pint of cow's milk, for four mornings.

The composition of this pretended specific was first published in "*The Philosophical Transactions*," from a recipe of *Mr. Dampier*, in whose family it had been kept a profound secret for many years *. It is said to have been purchased by Sir *Hans Sloane*; and Botanists tell a story of the Baronet being imposed upon by an old woman, who sold him the *Lichen terrestris*, instead of some other herb, which had been originally used in the composition of *Dampier's* medicine.

MEAD extolled it as infallible, and some of his followers have been equally sanguine; while *experience*, the great test of truth, has afforded a melancholy catalogue of its failures: and, it is presumed, convinced all, but the infatuated or the ignorant, that it is, at best, an inefficacious remedy.

After the use of the Pulvis Antilyssus, as above directed, the patient was to go into the Cold-bath every morning, during a

* Mead's Essay, p. 90

month; and afterwards three times a week for a fortnight.

His idea was, that the efficacy of the cold-bath depended on the pressure of water on the surface of the body; and the constriction made by cold, on the fibres of the skin and small vessels: and he preferred dipping in cold springs to immersion in the sea *.

With regard to the management of the wound, MEAD took upon himself to differ from GALEN, CELSUS, ÆTIUS, &c. who had recommended bold scarifications, cupping, and the actual cautery, completely to destroy the injured parts:—and delivered his opinion, that it would *be sufficient to enlarge the wound a little, and dress it with digestive ointment mixed with precipitate.*

JAMES advised *Turbith mineral*, but it does not appear that any of the patients, to whom he recommended it, had hydrophobia †. His idea of the use of mercurials appears to have been original, that is, not derived from any source of previous experience, though

* Mead's Essay, p. 92.

† James's Treatise on Canine Madness, p. 112. 132.

about the same period similar practice was mentioned by others.

PECHEY merely copied from his predecessors; and supported the claim of PALMARIUS to celebrity, on account of his powder, which, he says, by the grace of God, cured even desperate cases.

He believed that the breath of dogs communicated the disease *.

CHEYNE countenanced the use of mercurials, which, if judiciously managed, he expressly says, he thought capable of curing hydrophobia.

DOUGLAS ordered bleeding, and the application of strong mercurial ointment to the wound. He also recommended the Pulvis Antilyssus, before mentioned †.

SAUVAGES had a high opinion of the use of mercurials.

M. DE LASONE recommended mercurial

* Pechey's Promptuarium Medicinæ Praxeos, p. 266.

† See a Paper, entitled "A sure method of preventing, and the most probable way of curing the Hydrophobia," by JOHN DOUGLAS, Surgeon, F. R. S. inserted in *Dr. James's* Treatise.

ointment; but, like most other authors, seems to have been desirous of introducing it into the system, very gradually; and even to have checked its effect on the salivary glands, by cathartic medicines.

HILL, an apothecary of *Ormskirk* in *Lancashire*, was supposed to be the inventor of a celebrated preparation, which was, for many years, in considerable repute.

This medicine was analysed by *Lewis*, *Black*, and *Heysham*, who discovered that it consisted of the following ingredients, chalk, *armenian* bole, alum, elecampane root, and oil of anise. The last, in a proportion of *six drops* to about an ounce and a half of the powder.

The fame of this medicine gradually declined: and, having failed in numerous instances, it is at length fallen into deserved contempt, after having unfortunately engrossed a considerable degree of public confidence; and contributed largely to public misery.

TULPIUS thought the Cold-bath a preventive of *hydrophobia**.

* Obs. Med. lib. i, c. xx, p. 41.

Van der Wiel denied that the cold bath was capable of affording any relief, after *hydrophobia* had taken place *.

Van Swieten supposed that it was the great terror and agitation occasioned by violently plunging into water, which produced benefit; and not the quality of the bath †.

Heister, speaking of the dressings to be used after the application of a cautery to the bitten part, remarks, that for several weeks, and until the poison be completely discharged, the sores should be kept open; and a copious discharge, by all means, encouraged.

He also refers to the opinions of Celsus respecting the utility of very stimulating medicines ‡.

Latta and Berkenhout revived the idea of sucking the wound, in order to extract the poison. This practice, which originated at a very early period, (for it was well known in the days of Cleopatra) seems to have been, in the 13th century, rendered famous in *England* by the heroic exploit of the affectionate

* Stalpart. Van der Wiel, Cent. I. Obs. N. 100, p. 400.

† Van Swieten's Comment. vol. ii, p. 238.

‡ Heister, Pars I. lib. i, cap. xvi, sect. 12.

Eleanor, who, as History relates, safely and successfully sucked the wound of King Edward the First, which had been inflicted by an empoisoned dart *.

Modern compilers have ventured to recommend the same practice which DIOSCORIDES †, CELSUS ‡, GALEN §, ÆTIUS ||, and others, extolled.

History and Fable lent their aid to support the pleasing delusion. It furnished, to the elegance of poetic fancy, a rich theme for interesting description: but time, the touchstone of invention, has dissolved the fascinating charm. While we admire the fidelity, attachment, and heroism of those who have forgotten the value of their own lives, in the attempt to preserve their friends, we no longer commend the philosophy, or the wisdom of physicians, who promise indemnity for such dangerous undertakings ¶.

M. DE MEDERER, a *German* Professor, recommended a solution of *Nitrated Silver*,

* Rapin, &c. Baker's Chronicle, p. 94.

† De Medic. Mat. l. i, 6, c. 40. ‡ Lib. i.

§ Method. Medend. lib. xiii, c. 6.

|| Tetrabibl. iv, Serm. i, c. 10.

¶ Severini, c. v.

in the proportion of thirty grains to a pint of water, as a local application *.

HAYGARTH suggested the ablution of the bitten part, with very large quantities of cold water, for many hours †.

SIR GEORGE COBB, the British minister to the states of *Macaon*, brought home with him an antidote called "*the Tonquin Medicine*," a narcotic and sudorific, which was thought so powerful, that it was only necessary for it to be repeated once in thirty days.

The composition is—of native cinnabar and cinnabar of antimony twenty-four grains each; and sixteen grains of musk. It was to be exhibited in a draught of arrack, rum, or brandy.

This remedy had the character of being infallible among the *Chinese*, and it was also reported to have been successfully employed under the direction of *Sir G. Cobb:* but it has since fallen into disrepute.

RUSH strongly recommends bleeding copiously; and general evacuations, with blisters and cataplasms. He appears not to rely

* Medical Facts and Observations, vol. i, note to page 17.

† Haygarth's Directions to prevent Canine Madness.

on mercurials; but his account of the nature of the disease, as well as of the remedies employed for its removal, is so much confused, that it is difficult to understand his real meaning *.

Setting pathological reasoning at defiance, he advises the most opposite and contrary remedies: recommending low diet; yet the patient's spirits to be supported by cordials: burning the wounded part, and affusion of cold water, bleeding copiously, cathartics, sudorifics, salivation: and musk, opium, bark and wine: blisters and stimulating cataplasms with the cold bath! Of this author, and his practice, what shall I say more?

Moseley says, that among the native Indians, it has been an immemorial custom, to apply to the wounds made by poisonous insects and reptiles, a tincture or infusion of scorpions in rum; exhibiting some of the same internally.

The same author also says that Cayenne pepper powdered, and taken in a glass of rum, as much as the stomach can possibly

* Rush's Medical Inquiries and Observations, vol. v.

bear, is reported to stop the progress of the poison of serpents, even after its effects are visible:—that in such cases "the bitten part, only, mortifies and separates, and that the patient with the use of bark, wine, and cordials, soon recovers.

The Carthagena bean, or Antidote Cocoon, was also called a specific for all poisonous bites."

This writer directs *the injured part to be instantly destroyed or cut out.*

Destroying it, says he, "is the most safe, and equally certain: and the best application for that purpose is the *lapis infernalis*, or butter of antimony. These are preferable to an hot iron, which the ancients used; because an hot iron forms a crust, which acts as a defence to the under parts, instead of destroying them."

When the above mentioned caustics can not be procured, he recommends corrosive sublimate, oil of vitriol, aqua fortis, spirit of salt, common caustic, or a plaster made of quick lime and soap to be applied to the wound. Gun-powder to be laid on the part, and fired: and that when a person is bitten,

remote from any assistance, he should make a tight ligature above the part, until proper applications can be made *.

Such have been the principal remedies both curative and preventive which the wisdom and experience of times past, have accumulated.

* Moseley's Treatise on Tropical Diseases, p. 57.

CHAP. VI.

REMARKS ON THE TREATMENT DESCRIBED BY ANCIENT AND MODERN AUTHORS.

IT is observable that the practice of the ancients commenced with the use of a charm or amulet.

The dominion of superstition is at least coëval with the practice of medicine. They were soon closely connected together, and mutually increased the influence of each other. The ministers of religion became physicians; — hence the origin of those remedies which were calculated to impress the minds of patients with veneration for the professors of healing, as an occult science, which disdaining the limits of reason, is too sublime for the comprehension of ordinary intellects, and too sacred to be displayed before the eyes of the vulgar *.

Philosophy has scarcely had sufficient power to destroy the influence of such a

* HERODOTUS, DIOGENES LAERTIUS, DIODORUS SICULUS, ARISTOTLE, SOCRATES.

confederacy. At this present time, saphies and charms constitute the principal remedies for diseases among the inhabitants of rude and barbarous nations; and they are still cherished as efficacious applications, among the ignorant and uneducated, in more enlightened countries *.

Even in *England*, and in this age, charms consisting of a set of words written with ink, on paper or parchment, have been thrust down the throat of a mad dog, to cure him of the disease! Many persons now living, can attest the fact.

Of the same description are hellebore mentioned by DIOSCORIDES: PLINY's remedies, the dog rose, and the lytta, extracted from the mouth of young whelps, and carried round the fire: with many other applications, which being suggested at different periods, have been copied by authors from one another, until the mind is bewildered and disgusted with the task of particularising them.

It is to be lamented, that on medical subjects, writings have been multiplied more than ideas, and the labours of the industri-

* Park's Travels in the interior of Africa, p. 351.

ous exhausted in preparing volumes of useless repetitions, destitute of a single line of genius or originality.

This remark applies, not only to the Arabian authors, who copied GALEN, but to many other writers among the moderns, as well as the ancients, who have walked blindfold in the same intricate and dreary paths.

The fanciful suggestions of the inexperienced, the doating absurdities of ignorance and superstition, and the ridiculous inventions of quackery, have scarcely, even in modern times, given place to rational endeavours for the removal of a disease the most formidable in its attack, and fatal in its consequences, of any to which human nature is exposed.

But it would be unjust to the memory of PLINY to forget that many of the absurd remedies, which, as an industrious collector, he has recorded in his great work, were not at all approved by himself. Indeed after having mentioned the hyæna's skin, to be applied for the bite of a mad dog, he expressly remarks, that for *fabulous history* the crocodile stands next to the hyæna: and, in his twenty-ninth book, introduces

the account of many superstitious remedies with strong and indignant expressions of reprobation.

The recommendation of *Theriaca*, a very ancient form of medicine said to have been invented by ANDROMACHUS, physician to the emperor NERO, and recorded by ARETÆUS and many of the early writers; and also of sudorifics or stimulating preparations, of a hot and spicy nature, whose effects were heightened by wine drunk in large quantities, may be considered as the first medical effort to expel the poison which had been inoculated into the system.

On the same principle, hot baths were also used.

At that period there does not appear to have been any attempt made to cure Hydrophobia, which was universally supposed always to be fatal.

The cold bath was first ordered, without any particular regard to the quality of the water.

It was a principal object to excite terror and alarm in the mind of the patient: and some authors expressly directed that a great

display of preparation should be made for this very purpose.

It certainly was not an unreasonable conjecture that excessive action in one set of muscles might be subdued by their antagonists being violently stimulated: or, supposing the fancy to have had a considerable influence in producing the symptoms, to believe that directing the attention of the patient to other objects, or exciting it, by more poignant feelings, would remove the effects of the original impression *.

The muscles of a cripple, who, during many preceding months, had not been able to walk, have been restored to temporary activity, by the impression of affright and terror, occasioned by the house being on fire: the bed-ridden patient ran down stairs; but immediately afterwards, again became incapable of moving.

But forcible submersion, and attempting to compel persons to drink, whose throats were shut up by the most violent convulsions, were practices so irrational, that it is astonishing they should have been counte-

* Pearson's Principles of Physic, p. 20.

nanced by so great a man as CELSUS, whose proceedings with regard to the wound, were scientific and judicious.

The preservative or anti-putrescent power of salt, and its purity, symbolical of eternity and perfection, obtained for it, among the ancients, not only high reputation, but almost a sacred character*. They accordingly introduced it into medicine; and it entered into the composition of many of the remedies which they used for the prevention of Rabies: but it does not appear that any stress was laid on the superior efficacy of the water of the sea, to that of the ordinary cold bath, until a period long subsequent to that in which submersion was first practised.

At length the supposed benefit, which by CELSUS and his immediate followers, had been solely attributed to the fright and terror of sudden submersion, and confinement in a very cold medium till there was danger of suffocation, was transferred to the ideal influence of the saline quality of the bath.

Thus it began to be supposed, that re-

* Ezekiel, ch. xliii, v. 24. Homer's Iliad, B. i.

peated dippings in the sea, were capable of effecting all which had been attributed by the earliest writers to the violent plungings before described; indeed all which could be desired, — namely, the removal of Hydrophobia as well as every other symptom of Rabies.

This notion once assumed; was supported by the relation of pretended or supposed cures: — by the evident recovery of persons apparently diseased, and by the cessation of symptoms, feelings, and apprehensions which those who suffered them, and who, of course, were not at all calculated to form a judgment respecting their tendency, — imagined to be the infallible forerunners of a speedy and horrible death. It afforded hope to the disconsolate, gave confidence to the doubtful, and soothed the anxiety of the distressed. *But it did not prove a preventive; still less did it effect a cure.*

Innumerable instances have happened of persons dipped in the sea almost immediately after being bitten by mad dogs, who, nevertheless, were afterwards seized with

Hydrophobia, and died. Not one instance has been authenticated of a cure being effected after Hydrophobia had taken place.

Notwithstanding these convincing proofs of the inefficacy of the sea, or salt water, either as a curative or a preventive; the fame of the remedy, instead of being diminished, seemed even to increase; and during a long succession of ages, multitudes of patients have been continually resorting to the sea-side, with perfect confidence in the success of the remedy; to the neglect or exclusion of means more powerful, and more likely to produce benefit. So famous did the practice become, of throwing patients into the sea, that it was also at length recommended in ordinary cases of mania, as a very powerful, and indeed a principal remedy*.

There is not any principle on which the pretended efficacy of sea water could be explained: from the simple idea of its bracing or refrigerant quality, to the magical importance of the protecting power of salt as a charm against witchcraft and demoniacal

* Boerhavii Aphorism. MCXXIII.

influence. Reasoning opposes it; and experience condemns it.

The Oil-bath, mentioned by CELSUS, does not seem to have been understood, either in its principles or application. It was *originally* used, to restore the energies of the system, which had been exhausted by the violence practised in confining the patient under water when in the cold bath. The manner in which it may be presumed to have contributed to this end, was, probably, *by preventing the farther extrication of the principle of heat* :—by its quality as a non-conductor.

Those, who imitated the practice have evinced an entire ignorance of this important circumstance. They appear to have attributed to the oil a specific virtue: for they were not content with applying it to the surface of the body, but exhibited it internally *. More-

* Memoirs of the Medical Society of London, vol. iii, p. 454.

A Dutch physician recommended eggs fried in oil, as a specific for Canine Madness. It was communicated to the Medical Society of Amsterdam in 1781, and a long list of cases published, to prove it a remedy both preventive and curative.

over, in applying it to the skin, they were not satisfied without causing it to be rubbed in, with force and perseverance, as if the benefit to be expected from it, depended on its being absorbed.

This, certainly, was not the idea of CELSUS: and his followers ought to have understood him more perfectly, before they ventured to make such an innovation in his practice.

It might, perhaps, be the notion of those who, in modern times, have employed the same remedy, in the same manner for Tetanus: but this is a different affair. In both cases it is entirely erroneous: indeed, it is one of the rank weeds of theory.

There is, perhaps, nothing more injurious to the cause of science, than its being committed to the hands of rash and unreflecting persons: and the advantages which might be naturally expected from the learned labours of an experienced teacher, are often lost to the world, through the mistaken zeal or ignorant enthusiasm of his inconsiderate admirers.

But, whatever be the effect produced by the application of oil, as recommended by

CELSUS, or practised by others, either as a non-conductor of that subtile fluid which is constantly passing off from the surface of the body *,—or on any other principle of reasoning; there can be no just grounds for exciting confidence in its power of removing either Hydrophobia, or any other symptom of Rabies.

Absorbents applied to the bitten part, and also taken internally, were believed by the ancients to have great efficacy: — the power of attracting and uniting with the animal venom; and so conveying it out of the system.

The ashes of burnt crabs, recorded by PLINY and DIOSCORIDES, on the authority of writers, whose works have been long lost, are evidently of this class: although it is probable that they were first used under a superstitious idea that the *crab* is naturally a great enemy to the *serpent*, and an antidote to his poison. This may, I think, be fairly inferred from the remark of PLINY in his thirty-second book, where he says that it was an observation particularly insisted upon by THRASILLUS, from whom he quotes the use of the medicine, for Hydrophobia. In-

* Bache on Electricity.

deed GALEN theorises upon the utility of the remedy on the same principle *.

The *Lemnian* Earth, or Terra Sigillata, mentioned by GALEN, is also of the same description: and compositions of a similar nature have been borrowed from his practice, from that period even to the present time.

Armenian bole enters largely into the formula of one of our *English* remedies,—*the Ormskirk Medicine:* and it is very probable that this medicine owes its repute to the recommendation bestowed on *Lemnian* earth by the ancient writers, for it was esteemed the best substitute for that remedy: and although GALEN does not mention bole as being in use for envenomed wounds, he commended it greatly in the plague, and other violent diseases.

The authority of GALEN, therefore, may be considered as having introduced and established the use of the whole of this class of remedies.

In the ages which followed that in which GALEN lived, his opinions are well known to have had the most decisive influence. They

* Galen. De Simpl. Med. Facultat. lib. xi, c. 24, tom. 13, p. 310.

were received by the *Arabian* physicians as sacred oracles; and it would have been deemed a crime, not inferior to heresy or treason, for his successors to have opposed such authority.

The respect and veneration which were attached to the name and rank of GALEN, shut the doors of improvement on many succeeding generations, who, accordingly, never ventured to examine; still less to contradict any of his opinions.

This submission to blind guides has even reached down to modern times, and we still find "phlegmatic writers who continue to "look up to them with all the superstitious "ardour of antiquity; and venerate the *dig-* "*nity* of *Grecian* and *Arabian* physicians, "when their *patient industry* in recording "the symptoms of diseases, only entitles them "to our esteem *."

The Satyrist has justly observed,

"Some on the leaves of ancient authors prey;
Nor time nor moths e'er spoil'd so much as they." †

The young practitioner can not be too

* Observations on the History and Cause of Asthmā, p. 22.

† Pope's Essay on Criticism.

often cautioned *against that implicit confidence in the early writers, which tends to the permanent establishment of error, and the total suppression of ingenuity.*

Nor do I conceive, that it is unworthily detracting from the merit of the ancients, to have placed them in the situation which really belongs to their industry and exertions, although in a somewhat lower rank than that to which they have been undeservedly raised, by the devotion of their superstitious admirers.

What is it? but to offer the respect of rational and deliberate opinion, instead of blind and inconsiderate adulation. The writings of the Ancients are, in general, objects of criticism, rather than delight; and while we study them without prejudice, we should not suffer the garb which envelopes them to awe us into veneration.

The principal internal remedies, used in the early ages of physic, may be referred to one or other of the preceding heads. Many of them were recommended with earnestness and confidence: but if the Cynorrhodon of PLINY, or the Cold-bath of CELSUS, had been really believed effectual for the cure of *Rabies*, why were their followers not content

to recommend them as the only necessary remedies, instead of multiplying insignificant applications?

After the time of CELSUS, surgery gradually declined. It was in the hands of servile imitators, who neither had enlarged views of the profession, nor any disposition to improve it; or of ignorant and mean persons, who being destitute of the advantages of general literature, were despised by the higher classes of society, and thus excluded from the opportunities of improving themselves, or informing others.

By degrees, Surgery, like other arts, became corrupted and neglected. The irruption of the Goths and Vandals contributed to their fall; which was completed in the seventh century by the burning of the *Alexandrian* Library, and the destruction of every monument of taste, learning, and science, when ignorance and the Saracens took possession of the civilised world *.

After a long night of barbarism, mankind began to emerge from the thick clouds which had enveloped literature and the arts: but it was by slow degrees that they regained what had

* Warburton's notes on his Commentary on Pope.

been so long lost; and even on the revival of the sciences of Physic and Surgery, the most eminent practitioners continued to follow the Galenical mode, without making any effort to improve it.

The discovery of the Circulation of the Blood, neither afforded any new light respecting the nature of Rabies, nor the treatment of it. In modern times, as the knowledge of Chemistry advanced,—mineral preparations were introduced into medicine, and acquired celebrity in various diseases.

Mercury having been found capable of eradicating the influence of one specific animal poison, and of diminishing or subduing the power of others, was thought likely to counteract the infection of this dreadful disorder: but from the period of its introduction into practice, until the present time, very few persons seem to have duly considered in what manner its influence is excited; or how it can be rendered most effectual.

James, the first practitioner, who in this country recommended mercury, does not seem to have used it externally: and the doses he prescribed were too inconsiderable to affect the salivary glands, or pervade the lymphatic

system completely. Indeed, they were such as could do neither good nor harm.

DOUGLAS, and others, recommended a mercurial ointment: but it was only to be rubbed into the bitten part.

Among our contemporaries, it certainly has been more freely employed; but I believe, with very few exceptions, in the same *slow* and *gradual* manner in which it is commonly used in diseases of a very different nature: and when its *immediate* influence is not of so great importance.

In the case of Admiral Rowley's son, which has been quoted by most of the *English* authors who have since written on this disease, mercury was employed, as HUNTER expresses it, to fill the system *pretty full*, but not to excite salivation. HUNTER, however, candidly confessed, in the relation of that case, that *he was as much at a loss how to treat* the Rabies, *as practitioners were, a thousand years ago.*

On this occasion, as in most instances, the mercury was slowly applied, and its effect produced late in the progress of the disease: and it is at least as rational to attribute the want of success to the length of the interval

between the commencement of the disorder and the application of the remedy, or the insufficiency of the quantity employed to produce benefit, as to suppose that its effects would have been more advantageous, if it had excited a profuse salivation.

The latter, indeed, is the more common excuse, which has been made by those who approve the use of mercury, for its failure in the above instance; and the principal objection used against it by their opponents: but when it is recollected, that even a copious ptyalism has also failed to remove the spasms, when resorted to at an advanced period of the disease; it must be allowed, that the promptitude with which this remedy is employed seems of far greater importance than the degree of salivation produced by it.

It is sufficient, as was before observed, that the tremors, agitation, and spasms are removed: and these symptoms once subdued, no farther effect, in such cases, is required from mercury. There seems to have been great confusion as well as uncertainty in the minds of MEAD and others who recommended bleeding either as an efficacious remedy, in itself, or auxiliary to various

other applications. It neither accords with the notions of those who believe the disease to be of a febrile nature, nor of others who regard it as of the nervous kind; or who think it allied to Tetanus *.

It is farther remarkable, that the same writers who recommend bleeding *ad deliquium*, also suggest the use of strong internal stimulants! But not one of them has attempted to explain the principle by which he was actuated. The moderns, in this particular, are far more culpable than the ancients.

It would be an insult to the understanding and patience of the reader, to have enumerated all the trivial and ridiculous remedies which have filled the pages of modern authors. Remedies either directly or indirectly collected from ancient practice, or suggested by the modern experimentalist without any just grounds for confidence, or the least hope of their producing benefit.

Even pneumatic chemistry has been resorted to, and all the visionary conceits of PARACELSUS and HELMONT realized, in the treatment of this disorder, in modern times.

* Rush, &c.

"It has been a theme for theoretic physicians; a metaphor for poets; and a fable for historians."

The local or preventive treatment varied but little from the days of CELSUS and GALEN, until modern times. If it altered, it did not improve.

CELSUS undoubtedly understood the treatment of the bitten part as well as any of the moderns; and, as far as the means which were known in his time would allow, employed them with great accuracy and judgment. There is so much good sense and propriety in his advice to produce a constant and copious discharge from the wound after the destruction of the part which had received the poison, that, writing as he did, at so early a period, it entitles the author to the highest respect and admiration.

Later times have furnished more ample means of destroying the virus, by a variety of chemical preparations: the concentrated acids, and other applications.

These, like every thing relative to medical and surgical practice, have been often ill applied, and worse understood. Ignorance, inexperience, and credulity have

attributed to them *specific* virtues, when their effect was merely mechanical. Or the principles of the disease were supposed to be successfully combated, by some unknown and inexplicable quality, when the poison, which is the origin of the malady, was extinguished and destroyed by chemical action.

By such mistakes, practitioners as well as patients have too often imposed on themselves and each other. They, therefore, should serve as Beacons to direct men of science how to avoid hypothetical errors; and how to seek for practical good.

Among corrosive applications, that which is called the *Arsenical Caustic* has been preferred by some practitioners, not as a destroyer of organization, and thus an effectual preventive of the absorption of infectious matter; — but because they thought that arsenic, being a poison, was *therefore* most fitly opposed to the influence of another poison.

Arsenical caustic is composed of antimony, two parts, and white arsenic one part, melted together in a crucible. This is the strongest form of the preparation.

The principle on which this composition has been recommended in preference to others, is something like that which rendered the hyæna's skin famous, and occasioned the tooth of a dead man to be worn, to prevent the tooth-ache *: the right eye of a hedge-hog fried in oil to be eaten, to clear the sight: or, what is still more in point, the pills which *Anthæus* made of the scull of a man who had been hanged, to be considered a sovereign remedy for the bite of a mad dog.

Concentrated acids have been imagined to produce their effects by a specific quality. They have been accordingly recommended internally, as well as externally: and some have preferred the weakest, namely, the muriatic acid, formerly called spirit of salt, under the ancient error of believing that sea-salt, or brine, was efficacious in Rabies, on account of this acid being contained in it; although a moment's reflection would have been sufficient to convince them, that not a particle of it could be extracted by any process which can be performed in the degrees

* Plinii Hist. Animal. lib. xxviii, c. 4.

of heat capable of being endured by animal bodies.

These are the only remarks which I think necessary to be introduced, on the remedies hitherto prescribed. Many of those which have been in common use, and indeed many which have attained great celebrity at different periods, are in their nature so ineffectual, or so absurd, as not to deserve being particularised. The forms of some have been merely variations of those ancient remedies, of which the extraordinary qualities, or strange and unaccountable composition, or combination, has been the only recommendation to notice; besides a consideration of the justice due to the early discoverers or promulgators of remedial applications and medicaments, of any kind whatsoever.

I have no apology to make for having passed over in silence the names of the *German* authors, and others of the last century, and that next preceding. In general they are only to be regarded as mere copyists and followers of the Galenical school. Neither am I disposed to think that I should have benefited the public, or

increased the reputation of any of the contemporary writers on this subject, whose works are omitted in this history, by inserting either their pathological remarks, or therapeutical directions: even if these pages should happen to reach any one not already conversant with their writings, or be instrumental in spreading the fame of their practice more extensively than it is already diffused.

I have denied myself a sensible pleasure in having thus restrained the desire to applaud their excellent and humane intentions; because the disapprobation of their practice and remedies which duty would have compelled me, however reluctant, to express, must have necessarily counterbalanced the influence of every favourable sentiment, which inclination regulated by a sacred regard for truth, could have induced me to utter.

Thus much I have thought it becoming to say, in order to avoid the imputation of personal disrespect, or uncandid neglect, on the one hand; or of indolence or want of diligence on the other.

CHAP. VII.

OF THE PRINCIPLES ON WHICH THE PREVENTION AND CURE OF HYDROPHOBIA MAY BE UNDERTAKEN: WITH THE AUTHOR'S PRACTICE.

THE infection, communicated by the bite of a mad animal, has been shewn to depend on the introduction of the virus through the skin; or, in other words, to an abraded surface; and Hydrophobia, and other dreadful and dangerous symptoms, on the subsequent absorption of that virus into the system.

The bite having been inflicted, it is the business and duty of the physician or surgeon to prevent its evil consequences.

This can only be effected, either by cutting off all communication between the parts in which the virus has been lodged, and the rest of the system:—by changing the nature and quality of the poison itself;—or by producing such a degree of insensibility to its effects, as may secure the patient from danger.

The most effectual method is, undoubtedly, to destroy the virus altogether: but there is no remedy, with which we are at present acquainted, capable of doing this, without great injury of the part in which the matter is deposited: and the applications and contrivances which have been used for imbibing or washing out the poison are so uncertain, that the danger of placing any confidence in such practice, naturally ought to deter us from recommending it.

Besides, the quantity of infectious matter capable of producing Hydrophobia and Rabies, may be so very small, and the progress of lymphatic absorption in some instances is known to be so rapid, that no one ought to hesitate whether he should destroy the parts which have been bitten, or not; provided, by doing it, he can preserve a life which, otherwise, it is highly probable, would be sacrificed by timidity or delay.

There are two methods of effecting this purpose;—by the knife,—and by caustic.

They are both of early origin, but the diffusion of anatomical knowledge has improved the methods of operating with them, respectively.

In examining the merits of these modes of treatment, it is necessary to consider the structure of the parts liable to be injured by the bite.

In whatsoever degree the wound be inflicted, it is evident that, besides the cutaneous branches of the nerves; veins, arteries, and lymphatics, are exposed to the application of the virus; and that it is liable to be inoculated into them, and mixed with the fluids which they contain.

When the wound is deeper, the tendons also are often lacerated.

It can not be doubted, that when any portion of the infectious matter has been thus introduced, it is in general carried instantaneously to a considerable distance from the point of its insertion; for, can it be rationally imagined, that animal virus, of a nature so acrid and stimulating, remains stationary in the part into which it was originally inserted, when *action* is the existing law of living bodies; and every atom of matter, whether fluid or solid, with which such virus can come in contact, is perpetually performing its round in the general circulation: and, every instant, undergoing those changes, by

which it is either assimilated with other constituent parts of the system, or thrown out of it by secretion?

It may become a question, whether the period of the occurrence of Hydrophobia, and other symptoms of Rabies, be accelerated by the introduction of the virus into one of the abovementioned sets of vessels, rather than into another *.

It may also become a question, whether the subsequent disease be influenced either in its degree, or duration, by the matter of infection being applied to a nerve, at the same time that it is inserted into the sanguiniferous or lymphatic vessels?

And farther, it may be asked, Is this virus deprived of its baneful activity in consequence of any particular condition or quality of the blood or lymph with which it becomes intermixed?

In the present state of pathological knowledge, it would be difficult to suggest a satisfactory answer to either of these questions: but neither the one nor the other interferes with the principle before laid down, that a speedy and immediate destruction of the part,

* Willis, On the Pathology of the Brain, ch. vii.

into which the virus is inserted, alone affords a reasonable hope of interrupting the conveyance of, at least, some portion of it into the system.

There is only one case in which it can be imagined that the infectious matter remains for any considerable length of time, in the part into which it was inoculated; and that is, when the virus is deposited in the cellular membrane, without any wound, either of the vessels or nerves *. It is scarcely possible to suppose such a case: but, even were it to happen, the principle before suggested still more forcibly applies; for, sooner or later, from these recesses, the poison will be carried into the general circulation; and the consequences are undoubtedly more likely to be prevented, when the part into which it was introduced, is speedily destroyed.

It is evident, that the mode in which this can be effected, with the least injury of the contiguous parts, must always be preferable.

The advantages of the Knife are, the facility of its being used, the quick and immediate removal by it of the contagious poison;

* Blaise's Methode éprouvée pour le Traitement de la Rage.

the comparatively trivial degree of pain which it produces; and the complete division which it effects of any nerve which may have been punctured by the tooth of the dog: so as thus to remove the danger which might arise from the very nature of the wound, independent of the poison inserted into it. Its disadvantages are, the great effusion of blood, the destruction of sound parts, and the insufficiency of the operation to excite a free discharge from the wound without the use of painful and corrosive applications afterwards.

The Caustic, on the other hand, if skilfully applied, may be confined in its operation to the surfaces which have been exposed to the virus.

It may interrupt the progress of the disease, and prevent the absorption of the poison, even when the wound has been inflicted near the course of the larger blood-vessels; and thus afford time for the discreet application of those means which, in most instances, will render amputation of the limb unnecessary; and it speedily produces a copious discharge from the part bitten, which gives the best hope of draining off every remaining particle of the matter of contagion: and

without which, security can not prudently be promised. For these several reasons, and moreover because an effusion of blood, if it have not a tendency to promote the absorption of the virus, can have no effect in preventing it, I prefer the use of the caustic when it can be *immediately and accurately applied.*

However, when surgical assistance can not be procured, wherever a person has resolution sufficient to extirpate the part wounded, by cutting it out with a knife, it is far preferable to the application of any other remedy whatsoever. Even a profuse hæmorrhage is to be preferred before the danger of absorbing this destructive poison.

It has been most improperly said by MONRO, HUNTER, and others, that the disease may be prevented by excision of the bitten part, at any time before the occurrence of the second inflammation of the wound. This sentiment is so replete with danger, that, instead of entitling its author to compliments and praise *, it deserves to be publicly and solemnly denounced: for delay may sa-

* See the Life of MR. J. HUNTER, prefixed to his Treatise on the Blood, p. 32.

crifice many lives, which promptitude might have preserved.

Besides, the infectious matter is sometimes carried into the habit so insidiously, that no apparent change in the bitten part takes place.

The writers who have ventured to recommend a practice so replete with danger, and opposite to reason, do not deny that the safety and life of the patient depend on the complete destruction of the bitten part, at one time or another: and as on this point all persons seem perfectly to agree—it is surely the height of cruelty, as well as folly, to expose a patient to the danger of a most miserable death, by delaying an operation which, if performed early, would afford, at least, a chance of escape.

Considering it, therefore, to be an established principle, that the poison inserted into the bitten part is always to be destroyed as soon as possible after the bite has been inflicted, it follows, of course, that the operation should be performed in the most expeditious and effectual manner.

A certain degree of judgment is necessary in choosing the caustic to be applied. It

has been an objection to many preparations of this description, as it was also to the red hot iron, or actual cautery, that the eschar formed on the surface, or upper part of the wounds, might cover and shut up some portion of infectious matter, which remaining unaltered by the cautery or caustic, might afterwards produce disease.

Amongst the different preparations of this kind, *Lapis Infernalis*, and Butter of antimony, which have been mentioned before, are, at least, equal to any in use; for they possess the power of destroying organization completely, and of penetrating extensively, without forming an hard eschar, which might not only confine a portion of the infectious matter, but prevent that future discharge which it is so desirable to promote. This, however, let it be observed, is the only circumstance that entitles the composition to superiority over other escharotics: for any other preparation, equally capable of destroying animal fibres, and equally capable of being controlled in its operation, would be just as good.

It is not possible to imagine any specific virtue in the ingredients of which the caustics are composed: they act mechanically—and

whether they are formed of mercury, antimony, arsenic, or quicklime, seems to be a matter of the most perfect indifference.

Lapis Infernalis, or common caustic stone, melts as it is used, and is therefore well calculated for poisoned wounds, because, when skilfully applied, it may be made to enter into every part of them.

When the punctures or scratches made by the teeth or claws of a mad animal have been healed, without any application of this kind; or hastily dried up; and any indication of infection afterwards appear, the skin should be destroyed by scarification, or the use of *Lapis Infernalis* immediately applied, so as to burn both it, and the parts beneath, to such a depth as the nature of the original wound may seem to require.

Butter of antimony is another caustic, which appears to be inferior in utility to *Lapis Infernalis*, above mentioned, only because it is less manageable, and the effect of its operation less capable of being controlled within the bounds desired. However the liquid form of this composition may, in some instances of deep wounds by puncture, particularly in vascular and tendinous parts, ren-

der it a very commodious and desirable application. Some of it may be inserted into such punctures with a pencil brush, or otherwise, and its effect may, with great reason, be depended upon, as instantaneously destructive of any virus remaining in the wound.

But these two caustics should neither be applied together, nor immediately after each other: for their reciprocal action, which was formerly supposed highly favourable to their character as comparatively mild escharotics, is a serious objection in cases where the principal object is to destroy speedily and immediately the organization of the parts to which they are applied *.

Either of the preparations above mentioned is sufficient for this purpose; there is, therefore, no necessity for using both; and the intention may be defeated by employing them alternately.

Butter of antimony distinguished, at different periods, in the Pharmacopœia by the names of *oil of antimony*, and antimonial caustic, deserves a place there, much better than many officinal pre-

* Lewis's Collection of Medical Essays and Observations, vol. ii, p. 171.

parations contained in it. It is made by subliming equal parts of antimony and muriated quicksilver, *vulgo* corrosive sublimate, in a retort, when this liquid caustic first rises into the neck, and is from thence melted into a receiver *.

In general the surgeon is not called upon immediately after the infliction of the bite:—on this account, the application of the above-mentioned caustics is also the more to be preferred: and when used so as to destroy the whole surface of the wound, and to penetrate into every part of it, they appear to be far more certain in their effects, than the knife: indeed the knife ought not to be relied on, in any case, without the assistance of the caustic, nor do I myself depend upon it, alone, even when the operation is performed immediately after the bite has been inflicted.

It is indeed a severe remedy, but what dreadful scenes may it not prevent!

Whenever it be used, the operator should never desist until he has *completely destroyed the organization of the bitten part and the surfaces which the poison has touched.* De-

* Quincy's Dispensatory, part ii, sect. 15

struction is the object in view, and until it has been fully accomplished, *nothing* is done.

After the caustic has been *thus* carefully, most carefully applied, poultices are especially necessary to assuage pain and inflammation; and promote the suppurative discharge: which, as was before observed, ought to be promoted during a considerable time.

For this purpose, stimulating, acrid, and irritating dressings should be used, such as the ointment of gum elemi, or of yellow rosin mixed with a considerable quantity of spirit of turpentine, or with hydrargyrus nitratus ruber, commonly called *red precipitate*, ointment of savine: &c. in a word, the discharge should be promoted by every method which can contribute to render it copious.

It is also a necessary precaution to avoid pressure, either by the dressings, or bandages, because slight degrees of pressure applied to the surfaces of wounds, particularly of those in the limbs, have always a tendency to make them heal.

In the preceding remarks, as well as in those which will follow, I am aware that the minuteness to which I have descended,

may subject me to reflections: but this book is intended for the public at large; and was expressly undertaken with a desire to familiarize the subject to those who may be but little acquainted with medical science, although deeply interested in the event of proper or improper treatment; in cases of such dreadful importance as those to which these remarks apply. This minuteness therefore, it is hoped, may be excusable: although if the publication had been addressed exclusively to persons of professional experience and learning, it might have been deemed perhaps useless, or even impertinent.

The external treatment which has been described may be strictly called *preventive:* but lest any particle of the virus should have been absorbed, mercurial ointment by friction in such a manner as to penetrate into, and pervade completely, the lymphatic system, should also be used. For this purpose, inunction performed boldly and copiously, will be found most effectual. It is totally useless to employ the ointment in the accustomed manner, in very small quantities, at distant intervals.

An ounce, at the least, of the stronger

mercurial ointment (prepared by a careful union of equal weight of quicksilver and hog's lard by simple triture only), should be rubbed into the throat, neck, thighs, legs, and arms, indeed into every part of the body, as speedily as possible, and repeated every six, eight, or ten hours, until the salivary glands are affected.

If from any circumstance whatsoever, the bitten part have been neglected, or any symptom of rabies have taken place, the only hope which experience has presented to us, depends on the speedy and immediate influence of mercurials on the system. If the precursor of such symptoms be the swelling, inflammation, itching, or induration of the part in which the bite was received, — the speediest destruction of that part by caustic is undoubtedly advisable; but in such cases it is still less to be relied on, as a preventive of the disease, than when performed at an earlier period after the bite.

The use of mercury is, therefore, the more imperiously called for: and its exhibition thus rendered an object of the greatest importance. The very existence of the patient probably, altogether depends upon it

When Hydrophobia has actually taken place: delay in the use of this powerful remedy excludes even the shadow of hope: —fatal convulsions soon follow, and defy the power of medicine.

The nervous irritation which has been described as accompanying this disorder, demands great attention.

Unfortunately, however, this is most distressing when the administration of internal remedies is impracticable. In such cases all our reliance must be placed on the means before mentioned. But whenever the dread of water ceases, and yet the tremors and mental irritation continue; volatiles with camphor seem to be the most powerful agents to subdue those symptoms, without diminishing or interrupting the activity and effect of the mercury, previously employed.

Valerian, asafœtida, and camphor combined with alkohol and ammonia, are perhaps the most efficacious medicines.

Every practitioner has his favourite formula: —the mode of exhibiting these medicines is perhaps of less consequence than the promptitude and regularity with which they are employed. Of valerian it may be

observed, that it has been seldom prescribed in doses sufficiently large to be efficacious. A drachm may be given for a dose, with propriety and advantage. Its offensive flavour is said to be capable of correction by being united with mace*: but that of asafœtida can not be disguised.

Camphor, to be exhibited with any prospect of benefit, should be given in large doses. The common camphor mixture, or julep, is almost a useless trifle.

Camphor rubbed with alkohol and mucilage is readily dissolved, and may thus be taken in large doses: or it may be combined with soap in the form of pills, and in that manner exhibited even when a dread of liquids has taken place. But these can only be used as auxiliaries; for the class of medicines, called antispasmodics, has often been tried in vain. Opium, in the largest doses, has been again and again exhibited, without producing any remission of the spasms. But opium has no tendency to counteract the influence of the infectious matter;—the reception of which is the original cause of the disease.

* Lewis's Dispensatory, part ii, p. 244.

Opium has been prescribed for the purpose of diminishing sensibility in the system, and different authors have disputed about the quantity and doses of the medicine, which, in different climates, and according to the *fashions* of practice, may be, or ought to be administered. But to what purpose can any medicine be used, which is only capable of rendering the feelings of a patient obscure, while poison is circulating in his veins?

It is well known to pathologists, that nervous irritation, when once produced, often goes on, independent of its exciting cause: but this is not always the case; and when the morbid action depends on the presence of venomous matter, it will be in vain to attempt the removal of the effect, without destroying the poison which produces it.

All medicines, therefore, which have been recommended solely as narcotics, or antispasmodics, but which are incapable of subduing the infection, are nugatory, and useless. Neither musk, opium, æther, nor any medicines of a similar description, are therefore to be relied upon: indeed, nothing but mercury has been hitherto discovered, sufficiently active and powerful to arrest the pro-

gress of this destructive poison, or interrupt the fatal advances of rabid symptoms, after the dread of water has been produced.

It is difficult to determine the manner in which mercurials produce benefit in cases of envenomed bites. Whether by the excitement of a new action in the system: or by passing with great facility and celerity through the lymphatic vessels; and thus becoming intermixed with the poison which has been absorbed? Whether they deprive that poison of its activity, or change the nature of it by a chemical union, and thus form a new compound innoxious to animal life, and capable of being discharged from the body; or whether the action of mercurials renders the constitution less susceptible of the influence of the poison? Respecting these things I do not take upon me to decide. But in either case, it is evident that the more readily and completely this medicine can be forced into the system, the greater will be the chance of its efficacy.

The principal difficulty in the exhibition of mercurials is, to avoid the effect often produced by them on the intestines, particu-

larly when the more active preparations are used, internally. When combined with opium, this effect is indeed diminished; but the same reliance can not then be placed on the use of the mercury. Mercury should never be exhibited together with opium if it can be avoided; especially in those cases which require the effect of the mercury as a stimulant.

The application of this powerful remedy by inunction, is not liable to the same objection when a due degree of precaution be observed to keep the patient in bed, or surrounded by a warm and dry atmosphere: but it has been usual to employ it in a small quantity, and at considerable intervals, so that it has probably often failed of success, merely on account of the *tardiness* of its operation.

But as there is no reason to suppose that its efficacy depends on the *slow and gradual* excitement of ptyalism, but rather, on the contrary, upon its speedy and immediate introduction throughout the whole of the lymphatic system:—it appears advisable to apply it, in the most vigorous manner, copiously, and with incessant perseverance, until the sali-

vary glands are affected: and the spasms cease. The experience which I have yet had of the efficacy of this remedy, does not enable me to decide positively, whether *copious salivation* be necessary for the relief of the spasmodic affection.

As this symptom, at least partly, depends on the presence of the virus inoculated into the system, analogy inclines me to suppose, that the benefit produced by mercury would be as complete without a great degree of ptyalism, as with it, provided the medicine pervade the lymphatic system *generally*: and that the warmth of the mouth, united with the sensation of a metallic taste, is a sufficient proof of such an effect having been accomplished. But, in several cases, in which I have seen tremors, agitation, and spasm, yield to the influence of mercury, it is right to confess that a copious salivation preceded the cessation and relief of those symptoms.

However, it is to be remarked, that, in order to produce a *speedy and immediate* effect, large quantities of the ointment in every case, and of calomel in some cases, were used, so that the first and milder proofs of the influence of the mercury, namely, the

fœtor of the breath, heat in the mouth, and peculiar metallic taste, before mentioned, were no sooner perceived, than salivation took place. Future experience must, therefore determine the extent to which the use of mercurials ought to be carried in such cases.

In the practice which I have hitherto witnessed, the abatement of the symptoms, as soon as the mercury had pervaded the system completely, seemed to justify the discontinuation of the remedy: and the usual inconveniencies of excessive ptyalism, as in other cases, were removed by saline purgatives, or the use of preparations of sulphur.

The case of a person, then resident in Rupert-street, Piccadilly, whom I attended, by the desire of Doctor Moseley, affords, among many others, a most striking example of the benefit of a prompt and copious use of mercury, after hydrophobous symptoms had taken place: for she was attacked with *Hydrophobia* twelve days after having received the bite; considerably earlier than persons are usually seized with that decisive symptom.

At five o'clock the same evening, an ounce of Unguentum Mercuriale fortius, was well

rubbed in, about her neck, throat, thighs, and legs. It was repeated at five o'clock the next morning: and again at the same hour in the evening. At nine o'clock, her gums were much affected by mercury, and the saliva began to flow plentifully. The inunction was repeated at five o'clock the next morning. Her bowels were soon afterwards much affected. Thus, four ounces of mercurial ointment were completely rubbed in, at four frictions, within forty-eight hours.

This case was most decidedly marked: but the remedies were at hand, and applied with promptitude and alacrity.

Since the occurrence of it, many persons have been bitten by mad dogs, both in the Metropolis and in the country: many have come under my observation; and experience has confirmed the opinion, before advanced, of the superior utility of mercurial inunction over every other method of treatment.

It was originally my intention to have inserted a list of patients, in whom either the symptoms of Rabies itself, or of the venom being absorbed, have afforded the strongest conviction of the efficacy of the practice inculcated; but delicacy forbade it.

Scepticism, either real or pretended, has too often prompted to personal enquiries highly indecorous and distressing. I will not, therefore, expose the feelings of any one to the curiosity of the indelicate or impertinent. Reason and analogy are of themselves sufficient to convince men of science:—with these means of establishing truth, a detail of circumstances is unnecessary; without then it is useless.

In some cases there is evidently a much stronger disposition, than in others, for lymphatic absorption. Mercury enters more readily, not only into one subject than another; but, with greater or less facility, into the same constitution, under different circumstances. But although this consideration might sometimes diminish our confidence in the success of the application; it is not to be forgotten, that whenever the system be in a state so fitted for the process of absorption, and thus productive of the greatest alarm for the safety of the person bitten, —it is then best prepared and most readily disposed for the immediate reception of the mercury, by which we attempt to intercept or arrest the virus in its course.

Lest it should be objected against the opinion, before advanced, respecting the complicated nature of this disorder, that the symptoms which, in the last quoted instance, were subdued by mercury, might have been occasioned by the mode of inflicting the wound, which, it is acknowledged, was very small, and made by a puncture: it may be remarked, that the pain which took place first of all in the bitten part, and by degrees extended throughout the limb, was *also* accompanied by *lividness:* and that, even after several days, the state of the finger and hand shewed that the virus was active in the parts contiguous to the original wounds.

The same circumstance has also been observed in many other instances.

In all cases, in which the immediate introduction of mercury appears to be so highly important, the utmost attention is necessary for the most effectual application of it.

Inunction, as usually practised, or even in the manner above described, is not the only method in our power. *Calomel should be rubbed in the inside of the cheeks, and near the orifices of the parotid ducts in the mouth.*—Its intermixture with the saliva will

promote its absorption: and even when the dread of fluid is present, there is no repugnance to such an application.

This method of introducing mercury, was sometimes practised by HUNTER, and others, but I believe never in cases of disease from rabid bites, until directed by myself, the last autumn, in the case of a patient sent to me from a distant part of the country. Half a drachm of calomel was rubbed in at twice by the manner above stated. This method possesses advantages of great importance. It is more cleanly, quicker, and more certain in its effect; the mercury is thus applied almost immediately *to the principal seat of the disease.* I do therefore most earnestly recommend it to the attention of the faculty and the public.

In Hospitals, and other places where the apparatus for fumigation in a stove can be procured, this method also seems to be very commendable, more particularly, as the skin is relaxed at the same time, and a profuse perspiration induced; which, in every case, is a favourable indication.

In Rabies, as well as in every other dis-

ease, the peculiarities of constitution require attention: the progress and order of the symptoms; and the effect of the remedies employed: for these all vary in different persons; they either accelerate, or retard the ultimate event of the disorder, and afford the only criterion by which a prognostic can be made respecting it.

A multiplicity of applications, in some instances, may produce such contrarieties of symptoms, as will bewilder and confuse even experienced practitioners; and unless a proper discrimination be made between the effects of medicines, and the natural consequences of the disease itself, every attempt to remove it must be, at best, merely conjectural.

It can not, therefore, be too often repeated, or too forcibly inculcated, that among the most important duties of the medical profession, is that of correctly ascertaining the cause of symptoms; which alone, as was before remarked, can direct to a rational *method*, or indeed a rational *hope* of cure.

It requires longer experience than I have yet had, to ascertain how long after Hydrophobia has taken place, the method above

described may be adopted with success or confidence. Confined as our present knowledge of the subject is: it at least forbids despair, without inspiring presumption.

I am aware of cases having been published, to prove that mercury, like every other remedy, has sometimes failed of effect, in this most dreadful of all human evils: but I am not satisfied either with the facts produced, or the reasonings founded upon them.

Without cavilling about the care with which, in some of the doubtful or adverse cases, this remedy was applied; without adverting to the slow and gradual manner in which it has been in almost every case introduced; let it be permitted me, to remark, that although salivation may have been brought on, most copiously, and in a short time after the bite was inflicted, the subsequent occurrence of Hydrophobia, is not sufficient, in my mind, to destroy the reputation which mercury has so justly acquired by its success in numerous instances.

And if such a circumstance as that above hinted at, should at any time take place in

a patient under my direction, I should think it my duty to employ the most prompt and copious use of calomel in the mouth, and frictions with ointment on the throat, neck, breast, and limbs, as if it had never been previously applied: conceiving that the action of the medicine in the first instance might possibly have affected the glands while the matter of contagion was lying in the cellular membrane near the bitten part, having escaped the influence of the caustic, which was believed to have been used effectually.

The whole history of the treatment of persons bitten by a mad dog, may be very concisely summed up. No reliance can be placed on any applications but those which "destroy "the organization of the parts to which they "are applied; and create insensibility to the "operation of the poison, and an incapacity "for communicating it:" nor on any medicines but those which readily enter into and pervade the lymphatic vessels, and dispose the secretory and excretory organs for the discharge of the virus.

Nor is there any hope that a more complete method will be discovered: for a dis-

creet and judicious practitioner can not rely on the fallacious aid of medicines of whose mode of operation he is wholly ignorant; and it is impossible to calculate the probable advantages of untried and equivocal remedies.

G. L.

London, 10*th April* 1809.

INDEX.

A. Page

ABSORPTION of the Venom — — 65
Absurdities of Authors believed — — 55, 90
Accounts of Rabies generally incorrect — 2
Acid, muriatic, a remedy — — — 163
Acuteness of scent in Dogs — — 36
Advantages of proper food for Dogs — 35, 36, 37
Ægidius Menagius referred to — — 8
Ægineta Paul, definition of madness — 4
———————, on Hydrophobia — — 71
———————, his remedies — — 120, 121
Ælianus Varro, on Instinct in Dogs — — 8
Æschrion, his Antidote — — 117, 131
Æther, a useless medicine in Rabies — — 183
Ætius describes Rabies — — — 13
——— referred to — — 82, 119, 120, 137
Agitation at the sight of fluids — 80, 85, 99
Air generates Canine Madness — 30, 33, 60
——bubbles found under the Dura mater — 104
Alexandrian earth, a remedy — — 121
———————— Library destroyed — — 156
Alysson, madwort, a remedy 110, 115, 117, 119, 120, 122
Ambrose Parey cited — 21, 25, 26, 72, 83, 125
America, Dogs carried thence to Jamaica — 30
Ammianus Marcellinus referred to — — 6
Amomum, a remedy — — — 121
Amulets used by the Ancients — 110, 120, 142
Anatomy comparative, improved — — 43
Andromachus Physician to Nero — — 145
Anger, Dogs remarkably prone to — — 6
——— temporary madness — — — 8
Angelica-root, a remedy — — — 127
Animals of different species liable to different diseases 10
Anthæus, his Pills — — — 163
Antidote of Æschrion — — 117, 131
——— of Ætius — — — 131
——— of Apollonius — — — 117
——— of Apuleius Celsus — — 110
——— of Belchionius — — 117
——— of Sir George Cobb — — 138

Page
Antidote of Cratippus — — — 117
——— of Hiras — — — 117
——— of Menelaus — — 117
——— of Menippus — — — 117
——— of Mithridates — — 114, 118
——— of Palmarius — — — 131
——— of Posidonius — — 131
——— of Rufus — — — 131
——— of Zeno — — — 118
Antigua exempt from Canine Madness — 29
Antilyssus pulvis, of Doctor Mead — — 131
Antimony, Butter of, recommended — 140, 176
Apology for omitting modern writers — 165
——— for the inconsistency of authors — 77
Apoplexy, how probably sometimes occasioned — 90
Appearances of a Mad Dog described — 14, 15
——— of inflammation after the bite — 75
——— of the brain on dissection — 40
Appetite fails in Hydrophobous persons — 87, 98
——— for grass instinctive in dogs — 21
——— ravenous for meat — — 35
Arabian authors copied Galen — — 144
Aretæus, his definition of madness — — 4
——— thought the breath of a mad dog infectious 62
Aristotle first mentioned Rabies — — 12
——— says that dogs have the Gout — 12
Asafætida recommended — — 119, 121, 181
Ashes of a Dog's Head, a remedy — — 113
—— of River Crabs burnt alive 116, 117, 119, 120, 121, 122, 127, 131
Athenæus on Vigilance in Dogs — — 6
Atmospherical origin of Rabies — 30, 33, 40, 42, 60
Attachment instinctive of dogs — — 7
——— forgotten by mad dogs — — 17
Attempt to drink productive of Spasm — 80, 86, 98
Attention to prevent infection — — 43, 48
Aulus Gellius on sagacity in Dogs — — 8
Aurelianus Cœlius, Case of Hydrophobia — 62
——— his Cautions respecting bleeding — 86
——— definition of madness — 4
Authors, contradictions of, respecting the Lytta — 57
Avicenna said hydrophobous persons barked — 91

B.

Baccius de Venenis cited — — — 83
Bache on Electricity referred to — — 152
Baldus bitten by a mad dog — — 63
Balm, a remedy — — — 114, 128

Page
Bath, cold, considered — 132, 133, 145, 147, 149
—— Herald, a newspaper, referred to — 51, 52, 53, 54
—— of oil, considered — — 112, 150
Barbadoes, History of, referred to — — 28
Barking of mad dogs hoarse — — 14-15, 89
Bauhin, Caspar, referred to — — 24
Bay-berries, a remedy — — 121
Bezoar-stone, a remedy — — — 127
Birth-wort, a remedy of Avicenna — — 121
Bite of a mad dog not always difficult to heal — 74
—— not the only cause of Hydrophobia — 69
—— of a dog not mad produced Hydrophobia — 98
Biting prevented by muzzles — — 45
Bitter almonds, a remedy — — 114
Black analysed the Ormskirk Medicine — 135
Bleeding improper in Rabies — — 159
Boccone cited — — — 131
Boethius cited — — — 8
Boerhaave cited 16, 29, 32, 67, 73, 80, 93, 130, 131, 149
Bole, an ingredient in the Ormskirk Medicine — 135
Bonetus referred to — — — 93, 104
Bowels not usually disordered in Rabies — 92
Brain, appearances of the, on dissection — 40
——— worms bred in the, supposed to produce madness 29
Bread consecrated supposed to cure the bite of a mad dog 123
——— soaked in the discharge from the bite, said to kill fowls 24
Breath of mad dogs formerly thought infectious — 9, 62
Breathing of mad dogs short and difficult — 14
Broth of dogs' flesh, a remedy — — 113
Brucker's use of the word Rabies — — 6
Buchan, Lord, his servant in Hydrophobia — 84
Buffaloes killed for their skins — — 35
Buffon on the necessity of pure water — — 39
Butter of Antimony, how made — — 177
———————— recommended — 140, 175, 177

C.

Calculations of Authors amusing — — 74
Calomel, how to be used — — — 190
Camphor recommended — — — 182
Canine madness affects wolves, &c. — — 3
———————— not accompanied with fever — 68
———————— prevalent in France — — 3
———————— at Dover — — 29
Cantharides, a remedy — — 121, 131
Capivaccius cited — — — 103
Carcases of dogs an article of traffic — 59

Page
Carnivorous animals have peculiar diseases — 10
Carthagena Bean, a remedy — — 140
Casaubon referred to — — — 29
Cases of Hydrophobia by C. Aurelianus — 62, 86, 92
——— by P. Ægineta — 71
——— by Forestus — — 84
——— by Hildanus — 63, 64, 84
——— by James — — 84
——— by Morgagni — — 72
——— by Moseley — 85, 98
——— by Schenckius — 64
——— by Zacutus Lusitanus — 65
Cataracta, a Castle near Ghent — — 123
Causes of Rabies enumerated by Boerhaave — 29
Caustic, how to be used — — 122, 177
——— arsenical, how made — — 162
Cautery, a common remedy for ages 64, 115, 121, 122, 123, 127
Cedar burnt in fumigation — — 49
Celsus Apuleius quoted by Scribonius — 110
——— his remedies — — 111, 137, 147
Change in the name of the Disease — 68
Characteristic symptom of Rabies — — 17, 67
Charms used in modern times — — 143
Chemical action of Caustics — — 162
Chemistry, improvements in — — 161
Cheyne referred to — — — 134
Choisel, Claude de, referred to — — 72
Cicatrix of the wound becomes livid — 64, 75
——— unaltered — — 74
Cinnabar, a remedy — — — 138
Cinnamon, a remedy — — 110, 121
Claws of Animals may convey infection — 64
Cleanliness essential to the health of dogs — 58
Clemens Alexandrinus on the Dog-star — 7
Cleopatra — — — 136
Cloves, a remedy — — — 121
Coagulum of a Hare, a remedy — — 121
Cobb, Sir G. Ambassador at Macaon — 138
Codronchius called the Lytta a nerve — 54
Cœlius Aurelianus, Case of Hydrophobia — 62
——— referred to — 63, 75, 85, 92, 93
Cold and damp produce the foot-rot — 12
——— complained of by hydrophobous persons 87, 92, 101
Cold-bathing ordered by Celsus — — 111, 147
Colocynth, a remedy — — — 119
Columella quoted by Pliny — — — 50
Common notion of the cause of Rabies — 31

Page
Communication of Rabies to mankind — 62
Concurrence of circumstances necessary to the production of Rabies — — — — 42
Confidence of James in Turbith Mineral — 44, 133
Confinement of Dogs when Rabies prevails — 44
Contagion not necessary for the production of Rabies 32
Contradictions respecting the Lytta — — 57
Convulsions of the throat — — 80, 101
———— produced by the sight of fluids — 80, 82, 85
Corrosive sublimate, a remedy — — 177
Costiveness injurious — — — 58
Cow-pox infection — — — 70
Cowslips, a remedy — — — 129
Crabs burnt alive 108, 116, 117, 119, 120, 121, 122, 127, 152
Cripple made to walk by terror — — 146
Crooks de Tetano referred to — — 68
Cullen's Nosology referred to — — 68
Cupping advised by Celsus — — 111
———— by Dioscorides — — — 119
Cure of madness in dogs never attempted — 43, 44
Custom of worming dogs — — 50, 54
Cynorrhodon, Pliny's famous remedy 112, 113, 131, 155

D.

Danish dogs numerous in London — — 47
Defective account of Rabies — — 103
Degrees of malignity different at different stages of Rabies 77
Desault referred to — — 20, 131
Devastations of mad wolves in France — 3
Difficulty of communicating some diseases — 10
Diodorus Siculus referred to — — 7, 142
Diogenes Laertius referred to — — 8, 142
Dion Cassius referred to — — — 7
Dioscorides cited — — — 29, 71, 108, 137
———— advised scarifications — — 109
———— cupping and cautery — 109
———— copied by Matthiolus — — 123
Discharge from the wound not always copious — 25, 74
———— always to be promoted — — 178
Diseases peculiar to different animals — 10
Dislike of dogs to persons bitten — — 20
Dissections of dogs hitherto useless — — 40
———— of persons who died of Rabies — 103, 104
Dissertation on the Cow-pox referred to — 10
Distinctions respecting symptoms — 16, 78
Diversus Salius cited — — — 82, 88
Dog-rose, a remedy of Pliny — — 112

Page
Dogs celebrated for different qualities — 6
—— denied to be mad — — — 5
—— die from Rabies — — — 12
—— mad, are dull and stupid — — 15
—— naturally irascible — — — 6
———— fond of carrion — — 35
—— never perspire — — — 38
—— placed among the Constellations — 7
—— said to go mad from thirst — 13, 31
—— subject to the gout — — — 12
—— taxed, with great propriety — — 48
Dread of water in mad dogs — — 26
———— denied by James — — 26
———— sometimes ceases before death — 82
Dryness of the Pericardium on dissection — 103
——— of the Viscera generally — 103, 105
Douglas cited — — — 134
Dutch or salted herrings, a remedy — — 125

E.

Ears of mad dogs always hang down — 14, 15
Earth, Alexandrian, a remedy — — 121
—— Lemnian, a remedy — — 121, 123, 153
Edward the First wounded by a dart — 137
Effect of poison different in different animals — 10
———— sometimes long dormant — 70, 71, 72
Encyclopedie Methodique cited — — 56, 57
Epicharmus recommended colcworts — 115
Epidemical nature of Rabies — — 31, 60
Epilepsy probably occasioned by a bite — 90
Errors sometimes usefully related — — 3
—— in the denomination of Rabies — — 4—6
Excess of food injurious — — — 58
Exercise, excessive, injurious — — 34, 47
——— moderate, highly necessary — 58, 59
Expectoration of Phlegm and Saliva in Rabies 90, 96, 97, 101
Experiment to ascertain Rabies — — 23, 24
———— mentioned by Lommius — — 25
Extraction of the Worm in the Dog's mouth — 50, 54, 55
Eyes of Hydrophobous persons affected by light — 80, 92
—— of mad dogs inflamed and fierce — 15

F.

Fabricius ab Aquapendente cited — — 123
Failure of the cautery mentioned — — 64
Fallacious experiment of Dr. James — — 23
Fat, human, a remedy — — — 131

Page
Fernelius cited — — — 63, 72, 122
Fever not connected with Rabies — — 4, 5
Feverish phrenzy, a proposed name for Rabies — 68
Fidelity of dogs celebrated — — 7
Figs, a remedy — — — 115
Flesh of a pig said to have produced Rabies — 65
Fleur de Lis, a remedy — — 114
Fiorus cited — — — 23
Fœsius referred to — — — 4
Folly of keeping dogs in great cities — — 45
Food not always refused by mad dogs — — 16
—— proper for hounds — — 36, 57
Forceps used to extract the Lytta — — 56
Fordyce referred to — — — 10, 78
Forestus cited — — — — 84
Foxes subject to Rabies — — — 3
Fox-hounds said to be cured by James — — 44
Frequent prevalence of Canine Madness — 1, 41, 60
Frictions with mercury recommended — 158, 159
——— how to be used — — 180, 185, 190
Frothy saliva discharged by mad dogs — 14, 15
——————— by hydrophobous persons 94, 96, 111
Fumigating machine recommended — — 191
Fumigations very ancient remedies — — 49

G.

Galbanum used in fumigations — — 49
Galen, his definition of madness — — 4
——— cited — 71, 93, 116, 117, 118, 137, 153
Garum, a peculiar fish-brine — — 114
Geese supposed to purify kennels — — 48
Generation of Rabies — — 40, 41, 60
Gentian, a famous antidote 108, 116, 118, 119, 121, 127
Ghent, the cooper of, his cure — — 125
Goose-grease, a remedy — — — 114
Gorræus referred to — — — 4
Graminiverous animals have peculiar diseases — 10
Grass instinctively eaten by dogs — — 21

H.

Hair, human, a remedy — — 115, 122
—— of mad dogs looks dirty — — 27
Haller referred to — — — 59
Hamilton cited — — 8, 16, 56, 73, 90, 91
Haygarth recommends cold water — — 138
Heat excessive said to produce Rabies — 29
———— complained of by hydrophobous persons 47
Hedgehog's eye, a remedy for Ophthalmia — 163

Page
Heister cited — — — 26, 92, 136
Hellebore, a remedy — — — 43, 143
Helmont copied Celsus — — 123
Hernandes cited — — — 93
Herodotus referred to — — 7, 142
Herrings, a remedy — — — 130
Heysham analysed the Ormskirk Medicine — 135
Hildanus, his Cases of Hydrophobia — — 64
———— dissections of hydrophobous persons — 103
———— mentions hysterical symptoms — 84
———— his remedies — — 126, 127, 128
Hill, of Ormskirk, his powder — — 135, 153
History, natural, of the Dog very imperfect — 12
Hoarse barking of mad dogs — — 14, 15
———— noise of hydrophobous persons — 48, 89, 100
Homer referred to — — — 7, 147
Horace cited — — — 6, 114
Horror, supposed, of animals at the sight of a mad dog 19
Horehound, a remedy — — 114, 122
Horse, account of a mad — — 52, 53
Horses have peculiar diseases — — 10
———— stolen for dogs'-meat — — 46
Houlston referred to — — — 83
Hound, narrative of a mad — — 18, 52
Hounds not more liable to Rabies than other dogs — 34
———— prescribed for by Dr. James — — 44
Hughes's History of Barbadoes cited — — 28
Hunter, Mr. John, cited — — — 158
Hyæna's skin, an amulet — 111, 120, 144
Hydrophobia has arisen at the sight of water — 80, 85
Hypothesis usurps the place of experience — 106

I.

Jamaica visited by Canine Madness — — 30
James cited 19, 20, 23, 25, 49, 54, 75, 85, 133, 134, 157
Jenty's Lectures referred to — — 59
Imaginary sensations of Patients — — 79
Inclination of mad dogs to wander — — 17
Increase of salivary secretion — — 17, 94, 101
Infectious matter of Rabies peculiar — — 67
Inflammation of the Brain in Rabies — 40, 103
———— Œsophagus — — 40, 103
———— Stomach — 40, 92, 103
———— may produce Hydrophobia 92
Influence of anger in dogs — — — 6
———— the atmosphere — — 30, 60
Injury done by dogs in large towns — — 46
Inoculation of Rabies by the claws of a cat — 64, 66

Page

Insects, poison of — — — 70
Instances of Canine Madness 17, 18, 51, 52, 63, 64, 85, 86, 91
Instinctive antipathies of dogs — — 21
——— attachment of dogs — — 17
Interval between the bite and the disease 70, 71, 72, 73, 85
Johnson, Samuel, his account of worming dogs — 57
Irritability generally increased — — 80
Island of Antigua free from Rabies — — 29
Justin referred to — — — 6
Juvenal referred to — — — 6

K.

Kennels said to be purified by geese — — 48
——— washed with lime — — — 49
Knife, its advantages as a remedy — — 171

L.

Lacase, an hydrophobous patient — — 85
Lapdogs often stolen for their skins — — 59
——— peculiarly liable to diseases — — 58
Lapis Infernalis, a caustic, recommended — 140
Lasone referred to — — — 135
Latta's remedy — — — — 136
Laws of Epidemics ill understood — — 41
——— infectious matter — — — 70
Lemnian earth, a remedy — 121, 123, 153
Lewis mentions Hydrophobia from Gastritis — 69
Lieutaud relates dissections — — 103
Lime and acids for purifying dog-kennels — 49
Lipscomb's Observations on Asthma cited — 154
Liquids cannot be forced down in Hydrophobia — 80
Liver of a cormorant, a remedy — — 120
——— goat — — — — 115
——— hyæna — — — — 115
——— mad dog — — — 113, 121
——— sea-horse — — — 120
Liverwort, English, a remedy — — 131
Lommius describes a mad dog — — 14, 15
——— referred to — — 20, 25, 73, 93
London Medical Journal cited — — 75
Lucius Apuleius referred to — — — 6
Lucretius referred to — — — 6
Lytta how extracted, and why — 50, 54, 55
——— errors respecting it — — 56, 57

Page

M.

Mad dogs appear dejected and sleepy — 14, 15
Madness defined — — — — 4
——— in dogs resembles anger — — 5
——— signs of, in dogs — — 15
Malignity of animal poisons — — 24, 25
Mead's Essay quoted — 38, 68, 72, 74, 132, 133
Mease's Essay referred to — — — 77
Meat, proper food of dogs — — 33
Mederer, M. de, referred to — — 137
Medical Commentaries referred to — 21, 85
——— Facts and Observations referred to — 138
——— Records and Researches referred to — 24
Membrana lining the mouth of dogs — — 56
Memoirs of the Royal Society of Medicine at Paris referred to 3
Metcalfe, a fatal instance of Rabies — — 98
Methods of preventing Rabies — — 43, 57
Monro's erroneous opinion — — 172
Morbid poisons, Observations on — — 34
Morgagni on worming dogs — — 54
——— referred to — — 23, 31, 55, 72
Moseley on Hydrophobia — 76, 85, 89, 102, 104, 141
Muriated quicksilver — — — 177
Muriatic acid, a remedy — — — 163
Muscles falsely said to be affected — — 93
Musk, a remedy — — — — 183
Muzzles for dogs improper — — 45

N.

Nard, a remedy of Scribonius — — 110
Natural ferocity of wolves — — — 3
——— history of the dog imperfect — — 12
——— irascibility of dogs — — — 6
——— termination of Rabies — — 16
Nature of Canine Madness — — 1, 60
Nausea takes place in Hydrophobia — 87, 99
Necessity often determines the food of dogs — 36
Nervous irritation in Rabies — 80, 84, 92, 95, 99
Nitre and fullers' earth, a remedy — — 114
No perspiration in dogs — — — 38
Noise complained of by hydrophobous persons — 86
—— made by hydrophobous persons — 89, 100
—— produces anger in dogs — — 6

O.

Objection to the term Hydrophobia — — 68
Observations on dissections — — 40, 103, 104

Page

Obstinacy cherishes prejudices — — 33
Offspring, some animals devour their — — 37
Oil bath recommended by Celsus — 112, 150
Onions, a remedy — — 120, 121, 129
Olibanum, a remedy — — — 127
Opinion of the ancients — — 23, 108, &c.
Opium used by Scribonius — — 110
———— by the moderns — — 183
Opobalsamum, a remedy — — — 118
Opopanax, a remedy — — 117, 121, 122
Oribasius recommended colocynth — — 119
Orion — — — — 61
Ormskirk medicine once famous — 53, 153
———— analysed — — 135
Ovid mentions Hydrophobia — — 24, 111

P.

Pain felt in the part bitten — — 78, 79, 80
Palmarius, his powder — — 128, 131
———— quoted — — — 63, 64
Paracelsus — — — — 160
Parey, Ambrose, his experiment — — 24
———— remarks — — 72, 83, 125
Parkinson referred to — — — 129
Passengers annoyed by dogs — — 46
Paterculus referred to — — — 6
Pausanias mentions a sanative fountain — 116
Peasantry destroyed by mad wolves — — 3
Pechey referred to — — — 134
Peculiar influence of the air — — 31
Peculiarity of constitution — — 73
Pennyroyal, a remedy — — — 129
Pepper, a remedy — — 110, 118, 121
Perceval's Hints on Rabies cited — — 75
Pericardium found dry, on dissection — 103
Periods at which Rabies has prevailed — 41, 42
Perrin, Daniel, died of Hydrophobia — — 64
Perspiration not observed in dogs — — 38
———— favourable in Hydrophobia — 191
Philosophical Transactions cited — 74, 31, 92, 93
Philosophy, Brucker's Critical History of — 6
Pitch, a remedy — — — 117, 122
Plantain, a remedy — — — 128
Pleiades, the constellation — — 61
Pliny, his remedies — 43, 112, 113, 114, 115, 144
Plummer's case of Hydrophobia — — 94
Plutarch referred to — — — 7, 23
Polybius referred to — — — 7

Page
Polypody, a remedy — — — 128
Poor persons feed dogs with children's bread — 48
Precipitate, mercurial, recommended — — 133
Prejudices of a sceptical age — — 32
Prevalence of Canine Madness — — 1, 29, 30
Prevention of Rabies among dogs — — 43, 60
Principles of cure — — — — 166
Pryme, M. de la, cited — — — 92
Pulse of an hydrophobous patient — 79, 88, 99
Punctured wounds producing Tetanus — 79
Purification of kennels — — — 48
Putrid aliment a supposed cause of Rabies — 29
———— greedily devoured by dogs — 35
—— fever erroneously supposed similar to Rabies 4, 68
Pyron, S. Compte de, his powder — — 128

Q.

Quarantine useless and absurd — — 60
Quicksilver, a remedy recommended — 157
———— muriated — — — 177
Quincy referred to — — — 177
Quinsy a disease of dogs — — — 12
Quintus Curtius referred to — — — 127

R.

Rabies believed to be produced by heat — 29
———— thirst — 30
—— described by Ætius — — — 13
———— by Boerhaave — — 15
———— by Heister — — 26
———— by Lommius — — 14
———— by Ruysh — — — 14
—— epidemical in Hispaniola — — 30
———— in Jamaica — — 30
—— familiarly, not correctly, called madness — 4
—— first mentioned by Aristotle — — 12
—— has many varieties — — 16
—— most common among dogs — — 3
—— narrative of cases of — — 17, 86, 101
—— never seen by some who describe it — 3
—— not always easily communicated — 11
———— known in Antigua — — 29
———— more common among hounds — 34
———— in Africa than Europe. — 20
———— supposed to be produced by putrid food — 28
—— prevalent epidemically in England — 1, 24
—— produced by a concurrence of circumstances — 42
Rhazes asserts that persons in Rabies bark — 91

Page

Rolfinkius referred to — — — 103
Rot, a disease of sheep — — — 12
Rowley referred to — — — 68
Rowley's Son's case mentioned by Hunter — 158
Rue, a remedy — — — 114, 121
Rush referred to — — 70, 138, 139, 160
Ruysch referred to — — — 6, 14

S.

Saffron, a remedy of Scribonius — — 110
Sagacity of the Dog — — — 7
Sage, a remedy — — — — 128
Salivary secretion in dogs — — 38, 45
——— increased in Hydrophobia 17, 94, 96, 101
Salt, anciently much esteemed — 70, 115, 121, 125
—— fish, a remedy — — — 125
—— spirit of, a remedy — — — 163
Sanies discharged from the wound — 24, 25
Sanguiferous vessels — — — 169
Saphies used in Africa — — — 143
Sauvages recommended mercurials — — 134
——— referred to — — — 81
Scarcity of water in Antigua — — 29
——— fresh water in Venice — — 31
Schenckius's case of Rabies — — — 64
Scordium, a remedy — — — 118
Scribonius Largus referred to — — 110, 131
Sea-crabs less esteemed than cray-fish — 116
——water long celebrated — — 126, 147
Secreta Medicinæ referred to — — 71
Seneca referred to — — — — 8
Sepulchretum Anatomiæ referred to — 93, 104
Serpents, poison of — — — 70, 140
Shalots, a remedy — — — 126
Sheeps' wool to cure the bite — — 113
Sight of fluids distressing to hydrophobous persons 80, 85, 100
Sleek and shining hair of healthy dogs — 27
Snake root, a remedy — — — 128
Sordes about the mouth of mad dogs — 70
Spaniel bitten by a mad hound — — 18
Spasm — — — — 101
Spectator referred to — — — 36
Squills and honey, a remedy — — 114
Stomach inflamed — — — 69
Submersion, forcible, considered — 136, 148
——— practised by Celsus — — 111, 124
Sudorifics recommended — — — 139
Superstition coeval with medicine — — 142

Page
Swallowing of liquids impossible in Hydrophobia — 85
Swieten cited — — — 32, 76, 136
Swine, their voracity — — — 37
Symptoms of Rabies — 14, 15, 17, 86, 89, 100
——— peculiar to Rabies — — 68, 69

T.

Tacitus referred to — — — 6
Tail of a mad dog always reversed between his legs — 27
Terra Sigillata, a remedy — — 121, 122, 153
Terror productive of irregular symptoms — 79
Tetanic and Hysterical symptoms mixed — 80
Themison afflicted with Rabies — — 110
Theriaca of Apuleius Celsus — 100, 127, 145
Thrasillus quoted by Pliny — — 116
Tin, a remedy — — — — — 131
Tonquin medicine — — — 138
Trembling a symptom in Rabies — 91, 100
Tulpius referred to — — — 135
Turbith Mineral, a remedy — — — 44
Turpentine, a remedy — — — 178

V.

Valentianus referred to — — — 63
Valerian recommended — — — 181
Van der Wiel, referred to — — 72, 136
Van Swieten on the cause of Rabies — — 32
——— referred to — — 76, 136
Variations of the atmosphere — — 13
Varignan referred to — — 71, 122
Vaughan's Cases of Hydrophobia — — 88, 92
——— error respecting Rabies — — 89
Verney, Earl, his mad hound — — 18
Vervain, a remedy — — — 128
Vesalius referred to — — — 6
Vessels of the brain distended — — 104
Violent anger, intended by the word Rabies — 6, 7
Virgil referred to — — 6, 7, 12, 14, 49
Virus, experiment upon — — 23, 24, 25
Volatile medicines recommended — — 81

W.

Walnuts, a remedy — — — 115
Want of clean litter injurious to dogs — 12
Warm bath mentioned by Celsus — 111, 145
——— oil ditto — — — 112, 150
Water, how provided for dogs in Venice — 31
——— necessary to the health of dogs — 37

Page
Water required pure — — — 38
—— sea, a famous remedy — — 124, 149
Webster de Magia, referred to — — 73
White-washing kennels — — — 49
Why dissections have been unsatisfactory — 104
Willis referred to — — — 4
Wolves subject to Rabies — — — 3
Worming dogs, how performed — — 55
———— useless — — 56, 57
Wormwood, a remedy — — — 121

X.

Xenophon cited — — — 58

Z.

Zeno, his antidote — — — 118
Zacutus Lusitanus cited — — 64, 65
Zopyrus the Cretan, his antidote — 110, 118

THE END.

NICHOLS *and* SON, *Printers*,
Red Lion Passage, Fleet Street.